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Swift•MaxPro®

Thermal Cyclers

User Manual

Thank you for purchasing the Esco Swift MaxPro Thermal Cycler. Please read this manual thoroughly to familiarize yourself with the many unique features and exciting innovations we have built into your new equipment. Esco provides many other resources at our website, www.escoglobal.com, to complement this manual and help you enjoy many years of productive and safe use of your Esco products.

User Manual

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Swift•MaxPro®

Thermal Cyclers

US $ 50.00
Europe € 40.00

Additional manuals can be purchased through your Esco Distributor

Esco SWT-MXP User & Service Manual (Version 1.0)
Released October 2008

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WARRANTY TERMS AND CONDITIONS

Esco Life sciences products come with the following limited warranty, commencing from the date of shipment from Singapore.

- 24 Months on the Blocks and Peltier Units.
- 36 Months on all electronic components.
- 36 Months on the housing and fans.

Esco's limited warranty covers defects in materials and workmanship. Esco's liability under this limited warranty shall be, at our option, to repair or replace any defective parts of the equipment, provided if proven to the satisfaction of Esco that these parts were defective at the time of being sold, and that all defective parts shall be returned, properly identified with a Return Authorization.

This limited warranty covers parts, limited transportation and does not cover insurance charges.

For all peltier-relater warranty claims:

- The complete block assembly must be returned to ESCO, or to the distributer.
- Product return to Esco: Esco will pay for the ONE WAY shipping costs to return the unit to Singapore.
- The unit should be returned whenever possible in its original packaging.
- If the serial number of this product is altered, removed or defaced as to be illegible, the warranty shall be null and void in its entirety.

This limited warranty does not cover:

- Damage resulting from shipping, local deliveries or installation.
- If your product was damaged in transit, you must file a claim directly with the freight carrier.
- Products with missing or defaced serial numbers.
- Products for which Esco has not received payment.
- Problems that result from:
  * External causes such as accident, abuse, misuse, problems with electrical power, incorrect environmental conditions
  * Servicing not authorized by Esco
  * Failure to perform preventive maintenance
  * Problems resulting from using accessories, parts, or components not supplied by Esco
  * Damage by fire, floods, or acts of God
  * Customer modifications to the product

Factory installed, customer specified equipment or accessories are warranted only to the extent guaranteed by the original manufacturer.

All users must register their equipment online at www.escoglobal.com/warranty or complete the warranty registration form included with each product and fax to +65 6542 6920.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN TIME TO THE TERM OF THIS LIMITED WARRANTY. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. ESCO DOES NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED WARRANTY OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST WORK. ESCO'S LIABILITY WILL BE NO MORE THAN THE AMOUNT PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH ESCO IS RESPONSIBLE.

These Terms and Conditions shall be governed by and construed in accordance with the laws of Singapore and shall be subject to the exclusive jurisdiction of the courts of Singapore.

Technical Support, Warranty Service Contacts

Toll-Free USA and Canada 877-479-ESCO
Singapore: +65 6542 0833
Global Email Helpdesk: support@escoglobal.com

Visit **http://www.escoglobal.com/** to talk to a Live Support Representative
Distributors are encouraged to visit the Distributor Intranet for self-help materials.

Policy updated on 30th Jan 2007 *(This limited warranty policy does not apply to products purchased before 30th Jan 2007).*

INTRODUCTION

1. PRODUCTS COVERED

This manual is applicable and specific to the following Esco products.

Swift MaxPro Thermal Cycler (SWT-MXP) with following blocks					
Rated voltage (V)	96 wells gradient block	30 x 0.5ml + 48 x 0.2ml	384 wells gradient block	48 x 0.2ml x2 dual block	4 slide, *In situ* plate
100-240V, AC, 50/60Hz	SWT-MXP-BLC-1	SWT-MXP-BLC-2	SWT-MXP-BLC-3	SWT-MXP-BLC-4	SWT-MXP-BLC-5

2. SAFETY WARNING

During operation, maintenance, or repair of the Thermal Cycler, the following safety measures should be followed.

Esco shall not be in any way responsible for the consequences resulting from the improper use of the instrument, of from failure to heed these warnings.

a) Grounding Considerations

To prevent electric shock, the instrument must be grounded.

b) Keep Away from Electric Circuits

The operator must not open the Thermal Cycler. Changing components or adjusting certain parameters insidethe instrument must only be done by a trained and qualified service engineer. Do not change elements while the power is still on.

c) Power Requirements

Before turning the power on, always check that the mains voltage falls within the required A.C. 110-220V (±10% difference is allowed) and whether the current rating of the power socket meets the required specification, i.e. 600W MAX.

d) A.C. Power Line Considerations

Use the power cable that is supplied with the instrument. Should this be damaged, the power cable may not be repaired and must be replaced by a new one.

e) Connecting the Power Cord

Insert the plug properly to ensure good contact between the plug and socket. When removing the plug, pull on the plug and not the cord.

f) Environmental Considerations

The Thermal Cycler should be placed in a low-humidity, dust-free, and well-ventilated room and as far away from any source of water or humidity. The instrument should not be located directly under an air conditioner.

Never cover or obstruct the ventilation openings of the Thermal Cycle. These are designed for ventilation and prevent the instrument's interior from becoming too hot. When a single instrument is installed, the minimum distance between its openings and the nearest object should be 50cm; When two or more instruments are running at the same time, the minimum distance should be 100 cm. Do not place the instrument on a soft surface.

Excessively high temperatures will result in poor performance, or failure of the Thermal Cycler. The instrument should be protected against any kind of heat sources like sunlight, ovens, or central heating equipment. Do not place in direct sunlight, such as ion a window sill.

If the Thermal Cycler is not used for a long time, it is recommended to disconnect the power line and to cover the device with a piece of soft cloth or plastic, to prevent dust from entering.

3. LIMITATION OF LIABILITY

The disposal and / or emission of substances used in connection with this equipment may be governed by various local regulations. Familiarization and compliance with any such regulation are the sole responsibility of the users. ESCO's liability is limited with respect to user compliance with such regulations.

4. EUROPEAN UNION DIRECTIVE ON WEEE AND RoHS

The European Union has issued two directives:

- **Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)**

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:

ESCO sells products through distributors throughout Europe. Contact your local ESCO distributor for recycling/disposal. Please note that for contaminated devices(example biological safety cabinets), it is the responsibility of the user to ensure the product is decontaminated prior to disposal and to provide Certificate of Decontamination to the ESCO distributor/disposal agency.

- **Directive 2002/95/EC on Restriction on the use of Hazardous Substances (RoHS).**

With respect to the directive on RoHS, please note that this cabinet falls under category 8(medical devices) and category 9 (monitoring and control instruments) and is therefore exempted from requirement to comply with the provisions of this directive.

5. SYMBOLS

Important safety messages are provided in this operating manual. Always read and obey all safety messages. Failure to comply with the following warnings and cautions can lead to possible personal injury or death.

WARNING! Important note!: Read and understand before processing. Important safety related points will be marked with this symbol.

6. LABELS

ESCO Micro Pte. Ltd

Name: Swift™ MaxPro Thermal Cycler
Model: SWT-MXP + SWT-MXP-BLC-*
Block: SWT-MXP-BLC-*
SN: MXPBLCO1****-09
Date: ****.**

ESCO Micro Pte. Ltd

Name: Base for Swift™ MaxPro Thermal Cycler
Base: SWT-MXP
Power: ~100-240V 600W, 50/60Hz
Fuse: AC250V 8A (Ø5 x 20)
Sort: Class I IP20
SN: MXP****-09
Date: ****.**

There are two warning signs: 'HOT SURFACE!' During the program runs and immediately thereafter, the metal parts close to these warning signs (on the block and hot lid) should not to be touched.

7. IMPORTANT NOTE

For research use only.

Not for diagnostic use.

Esco Micro Pte. Ltd. is not responsible for the improper use of this instrument.

Declaration of Conformity *

In accordance with EN 45014:1998

We, **Esco Micro Pte Ltd**
based at 21 Changi South Street 1
Singapore 486777
Tel: +65 65420833
Fax: +65 65426920

declare on our sole responsibility that the product:

Equipment : Swift MaxPro Thermal Cycler
Model : SWT-MXP + SWT-MP-BLC1
SWT-MXP + SWT-MP-BLC2
SWT-MXP + SWT-MP-BLC3
SWT-MXP + SWT-MP-BLC4
SWT-MXP + SWT-MP-BLC5

in accordance with the following directives:

- **2006/95/EEC : The Low Voltage Directive and its amending directives**
- **89/336/EEC : The Electromagnetic Compatibility Directive and its amending directives**

has been designed to comply with the requirements of the following Harmonized Standard:

- **Low Voltage : EN 61010-2-010:2003**
- **EMC : EN 61326-1:2006**

More information may be obtained from Esco's authorized distributors located within the EU. A list of these parties and their necessary contact information is available on request from Esco.

Lim Lay Yew
Chief Executive Officer

* Applicable only to 100V-240V, AC, 50 Hz/ 60 Hz thermal cycler.

ABOUT ESCO SWIFT MAXPRO PCR THERMAL CYCLER

1. Brief Introduction of PCR Technique

PCR (Polymerase Chain Reaction), or cell-free molecule cloning, is a technique for amplifying nucleic acids in vitro, emulating natural DNA replication process. The PCR technique, using two DNA strands to be amplified as template, and a pair of synthetic oligonucleotides as primers, rapidly reproduces the specific DNA pieces under the catalysis of a thermostable DNA polymerase. Because of its simplicity, rapidity, specificity, and sensitivity, PCR has been widely applied to all fields of life sciences since its invention by Mullis in 1983 and the discovery of the thermostable DNA polymerase by Erlich in 1989. Great achievements have been obtained in PCR's applications in such areas as cytology, virology, oncology, genetics, forensics, and immunology. PCR technology is a milestone in the history of modern molecular biology.

2. Application Area of PCR Technique

Research Areas	Gene cloning, DNA sequencing, mutation analysis, gene recombination and mutagenesis, identification and adjustment of DNA sequence of protein structure, detection of gene extension, construction of synthetic genes, construction of cloning and expression carrier, detection of polymorphism of a gene's inscribed enzyme
Clinical Diagnoses	Bacteria (spirochaeta, rickettsia, diphtheria bacillus, colon bacillus, dysentery bacillus, and clostridium) Virus (HTLV, HIV, HBV, HCV, HPVS, EV, CMV, EBV, HSV, measles virus, rotiform virus, B19 virus, and Lhasa virus); Parasite (malaria); Human hereditary diseases (Lesh-Nyhan syndrome, hemophilia, BMD, and DMD)
Immunology	HLA locus typing, qualitative analysis of T-cell receptor or antibody diversification, immune body gene mapping, quantitative analysis of lymph genes
Human Genome Project	Identification of DNA markers using discrete repetitive Sequence, construction of a genetic linkage map (detection of DNA, polymorphism, or semen mapping); Construction of a physical map, sequencing, and map expression
Forensics	Specimen analysis in the venue, and HLA-Dqαlocus typing
Oncology	Pancreas cancer, rectum cancer, lung cancer, thyroid gland cancer, melanin cancer, and leukemia
Social and Colony Biology	Genetic species research, evolution research, animal protection research, ecology, environmental sciences, and experimental genetics
Paleontology Biology	Specimen analysis in archeology and museum Diagnosis of animal hereditary diseases and detection of plant pathogeny

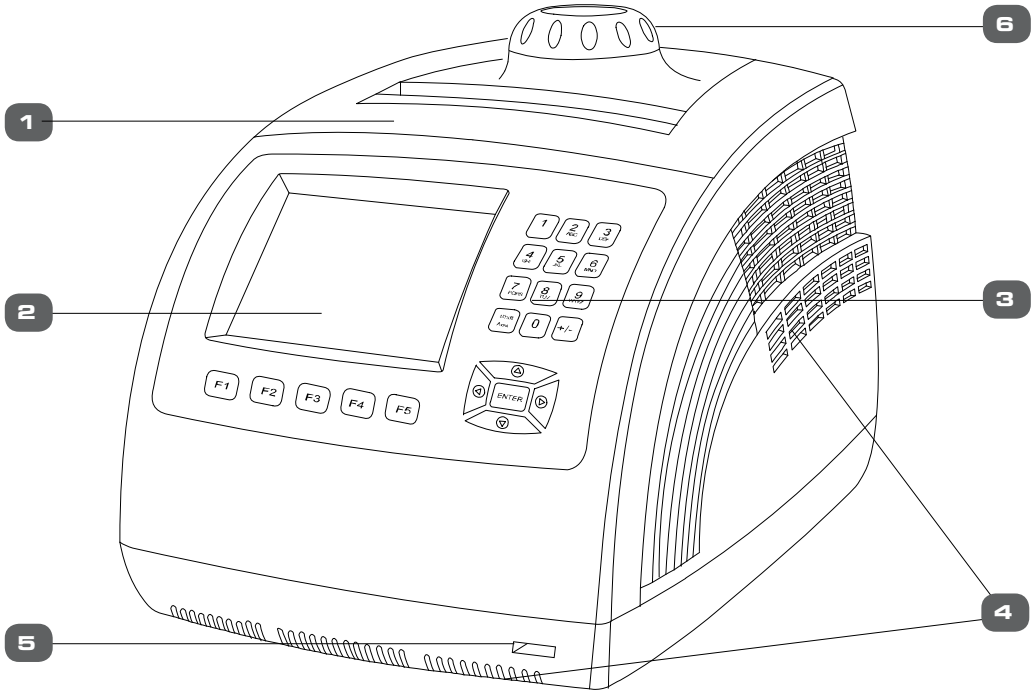
3. Features of Swift MaxPro

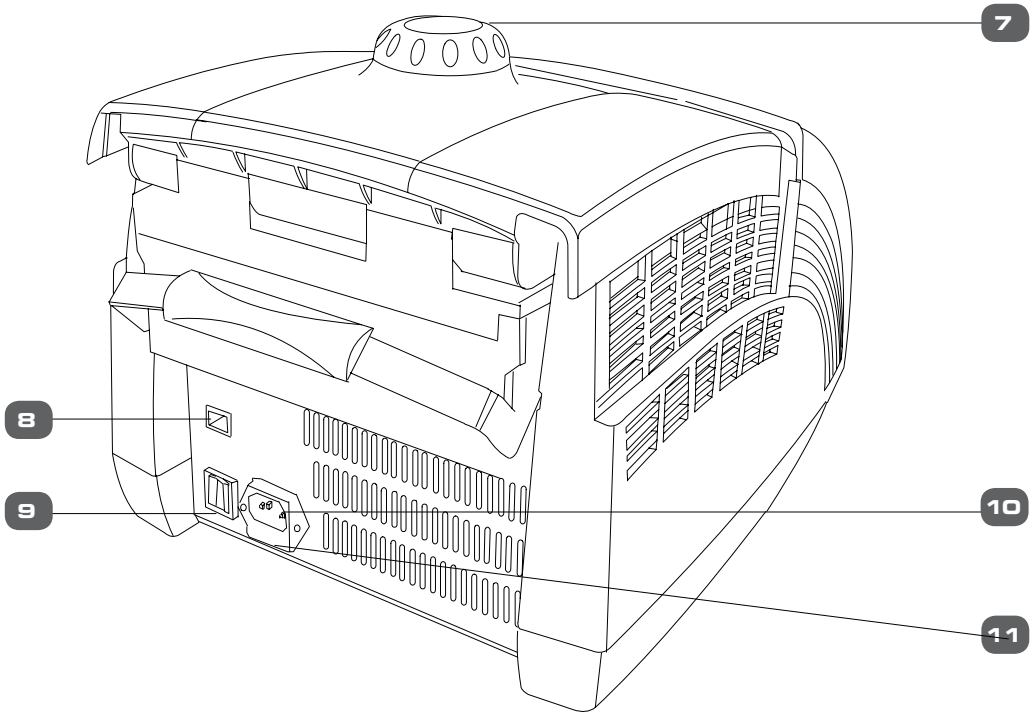
The Swift MaxPro Thermal Cycler is a multi-function PCR amplification system with the following features:

- A choice of Five of interchangeable blocks.
- Advanced thermoelectric cooling (Peltier) technology with high quality Peltier units, guaranteeing rapid, stable and reproducible performance;
- Fast ramp rates (4°C/sec) average heating. Ramp rates can adjust according to different experimental conditions.
- Multiple temperature-control modes.
- The Thermal Cycler's central processor can automatically distinguish the block type, and automatically load the correct program.
- User friendly, large screen LCD and ergonomically designed interface.
- Auto power off function. Programs are resumed when the power comes on.
- Hot lid pressure and temperature are adjustable.
- USB interface allows data transfer between USB and equipment.
- RJ45 standard interface allows up to 30 Swift MaxPro thermal cyclers be connected and controlled by normal computer. Software upgrades via RJ45 as well.

CHAPTER 1
BASIC PRODUCT INFORMATION

1.1 QUICK VIEW





No.	Name	Description	Note
1	Block	With hot lid, heat sink and heating& cooling system.	Five interchangeable blocks are available for different requirements.
2	LCD Screen	Display protocol, conditions and other information during setting and running.	
3	Keyboard	For setting and controlling.	
4	Ventilation vent	Blow heat air out through ventilation vent.	Don't block off ventilation vent
5	USB interface	Data transfer between USB and equipment through USB interface	
6	Hot lid knob	Adjust the height of the hot lid	Turn the knob counter-clockwise before closing the lid. Note that the knob can be tightened by turning it clockwise, and can be loosened by turning counter-clockwise.
7	Unlocking Device	Loose the hot lid knob	If hear click sound at the beginning of turning the knob clockwise and counter clockwise, press the unlocking device and turn the knob counter-clockwise for two rounds to loose the knob
8	RJ45 interface	For PC control and software upgrades	Up to 30 Swift MaxPro thermal cyclers can be connected and controlled by normal computer through RJ45 interface.
9	Power Switch	Turn the equipment ON/OFF.	
10	Power Socket	Connect power supply.	
11	Fuse Socket	Install fuse in the socket to protect equipment from over-current.	The fuse specifications are as follows: 250V 8A, 5×20. Fuse should be replaced by one that complies with these specifications.

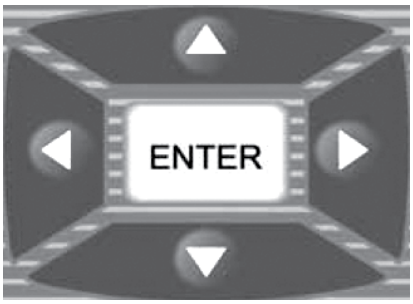
1.2 KEYBOARD

1.3 PROGRAM KEYS

Digit & Letter: Select the letter by repeatedly pressing the button

Function: Press +, - when editing cycling temperature and time
Press +, - to set infinity time for a certain temperature

Shift: Shift from one block to another and from Capital to Lowercase



Right/Left: Moves the cursor one position to the left or right when pressed during file parameter setting.

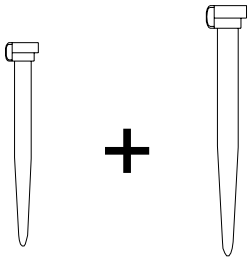
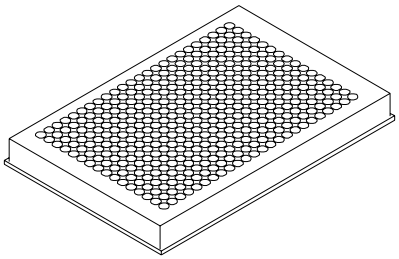
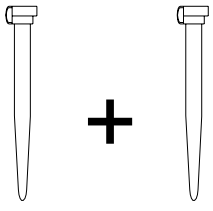
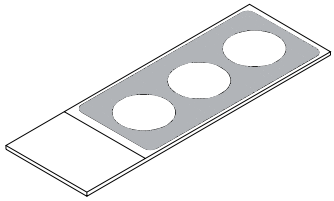
Up/Down: Moves the cursor one position to the up or down when pressed during file parameter setting.

Enter: Press to accept current parameters as displayed on the screen.

Menu: Press button to accept the current option displayed above the button.

1.4 BLOCKS

A variety of blocks are available for different requirements.

 Standard 0.2ml Centrifuge Tube	SWT-MXP-BLC-1: 96×0.2ml (Gradient block)
 Standard 0.2ml Centrifuge Tube + Standard 0.5ml Centrifuge Tube	SWT-MXP-BLC-2: 30×0.5ml+48×0.2ml
 384-well plate	SWT-MXP-BLC-3: 384 well plate (Gradient block)
 Standard Centrifuge Tube 0.2ml×2	SWT-MXP-BLC-4: 48×0.2ml+48×0.2ml
 *In situ* slides	SWT-MXP-BLC-5: 4 *In Situ* Slides

1.5 TESTING

1.5.1 Basic testing

Before being shipped, each individual unit is extensively tested for performance and safety and delivered with a detailed test report. Testing performed at our factory includes:

- Appearance and External identifier
- Electrical safety
  - Protected grounding resistance
  - Leakage current to ground
  - Leakage current to plastic shell
  - Dielectric intensity
  - Insulation
- Anti-jamming performance
- Function testing
- Performance testing
  - Temperature accuracy
  - Temperature uncertainty
  - Block temperature uniformity
  - Temperature control range
  - Maximum Heating and cooling rate
  - Hot-lid working temperature range
- USB interface AND RJ45 interface

1.5.2 Additional testing

Our cyclers are also tested by The Cyclertest® Drifton system which is, next to the MTAS certification, the ideal tool to serve as a periodic validation instrument for PCR Tests, in order to make sure our products are outstanding in performance.

For further details of these systems visit www.cyclertest.com.

CHAPTER 2
INSTALLATION

2.1 UNPACKING YOUR INSTRUMENT

2.1.1 Inspecting the instrument

Inspecting the Swift MaxPro Thermal Cycler and all other supplied parts, for any damage that may have occurred during shipment. If there has been any damage during transit, notify the carrier and distributor immediately.

Note: *Save the shipping container and all packing materials in case it becomes necessary to reship the instrument.*

2.1.2 Packing contents

The following items are included along with your manual:

1. Swift MaxPro thermal cycler
2. Power cable
3. USB cable
4. RJ45 cable
5. Fuse
6. Compact Disk
7. Performance testing report
8. Packing list

2.1.3 Additional Part

You can order other block from Esco.

Order parts	Order Code
Swift MaxPro Cycler Main Body 100V-240V	SWT-MXP
Swift MaxPro Block 1 (96x0.2ml) Gradient	SWT-MXP-BLC-1
Swift MaxPro Block 2 (30×0.5ml+48×0.2ml)	SWT-MXP-BLC-2
Swift MaxPro Block 3 (384 well plate) Gradient	SWT-MXP-BLC-3
Swift MaxPro Block 4 (48 x 0.2ml) x2	SWT-MXP-BLC-4
Swift MaxPro Block 5 (4 *In situ* slides)	SWT-MXP-BLC-5

2.2 INSTALLATION LOCATION REQUIREMENT

2.2.1 Choose a location

The Thermal Cycler should be placed in a low-humidity, dust-free, and well-ventilated room and as far away from any source of water or humidity. The instrument should not be located directly under an air conditioner.

2.2.2 Normal operating conditions

Ambient temperature: 10°C ~30°C

Relative humidity: ≤70%

Power supply: 100V-240V, 600W , 50/60Hz

2.2.3 Transportation and storage conditions

Ambient temperature: -20°c - +55°c

Relative humidity: ≤80%

2.2.4 What to avoid

1) Cover or obstruct the ventilation openings of the thermal cycler.
2) Near to other instruments on the same bench or other heating generating equipment.
3) Damp areas.
4) Environments where there is oil mist.
5) Locations subject to heat sources like sunlight, ovens, or central heating equipment.

2.3 INSTALLING YOUR INSTRUMENT

2.3.1 Installation of the Block

Install and Remove the block as follows:

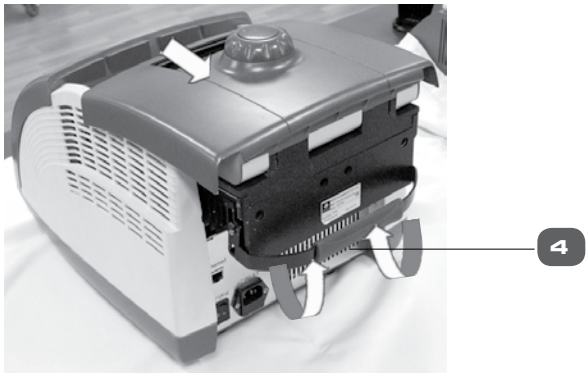
1) Installation:

- Place the block 1 into the housing well 2 and push it slowly forwards until a connection between the block socket and the main unit's connection plug 3 is achieved.
- Press the locking handle 4 downwards, the block will move forward automatically until you hear the click sound, which means the block is installed successfully.

• Do not force!

2) Removing the Block

- Turn off the power supply.
- Uplift the locking handle 4, the block will move backward a bit.
- Pull the locking handle to move block gently towards the rear of the main body.
- Remove the block from the main body.



Note: *Turn off the power supply before installing block.*

When installing the block, pay close attention to pushing the block slowly and gently ; or the main unit's connecting plug may be damaged.

When uninstalling the block, please pull the block from the block bath gently. Do not tilt the block or the connection plug may break.

2.3.2 Inspection before Power-on

Before switching the power on, please ensure that:

1) The supply voltage falls within the specified limits;
2) The plug has been inserted into the power socket.
3) The power line is grounded.

2.3.3 Power-on

Turn on the power (i.e. turn the power switch to position "–", The Cycler will beep twice, and the LCD will display Self testing ••••••. The instrument will self-test for about 1-2 minutes. After the self-test, the main menu will be displayed, and the instrument is ready for use.

CHAPTER 3
RUNNING PCR SAMPLE

There are five block types for this cycler. In this chapter, we will describe in detail the operation of each block type, including, how to edit, access, modify, delete, or run a PCR amplification program and how to set the operating parameters for each block.

Immediately turn the power off and contact the distributor if any abnormal sounds or display appear after power-on, or if the alarm sounds during self testing.

Note: *If the number of samples is less than the number of wells in the block, the reaction tubes should be evenly distributed over the block. This ensures that the heated lid will exert even pressure on the the sample tubes.*

Turn the knob counter-clockwise before closing the lid. Note that the knob can be tightened by turning it clockwise, and can be loosened by turning counter-clockwise.

After closing the cover, but before power on, turn the knob clockwise until you hear the click sound.

If hear click sound at the beginning of turning the knob clockwise and counter-clockwise, please press the unlocking device and turn the knob counter-clockwise for two rounds to loose the knob.

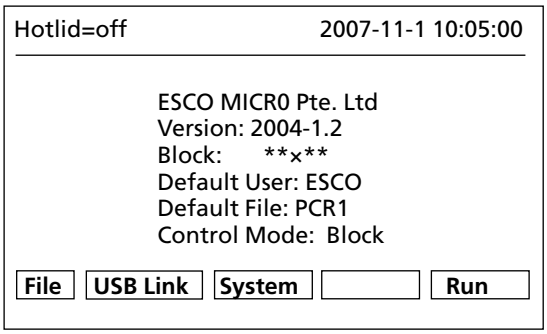
DO NOT OVERTIGHTEN! HAND TIGHTEN ONLY

3.1 HOW TO RUN A SINGLE-BLOCK PCR PROGRAM

Switch the power on. The Thermal Cycler will beep twice.

The screen will display **Self testing** and the instrument will self test. Self-testing requires about 1~2 minutes. If the self-testing is successful, the display on the right will appear.

Main Window



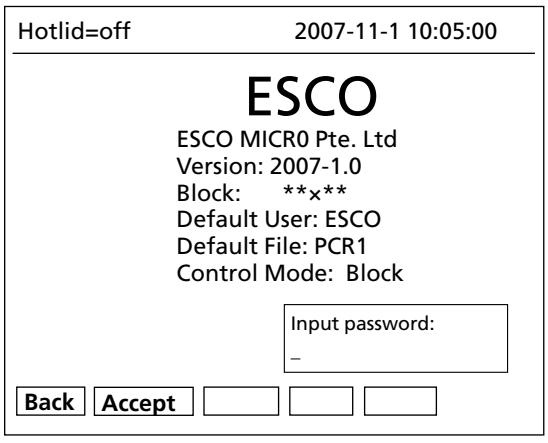
The top left of the main window shows the Hot lid temperature.

The central area shows Instrument information, software version number, block model, default file, default user, control mode and sample volume.

- Press **File** to enter file list window.
- Press **System** to enter system parameter setting window.
- Default Control Mode is Block Mode
- If current file doesn't have password, press **Run** to access the File Run window
- If current file has password, press **Run** to access the File Run window

In this window, press Character to input password.

Password Window

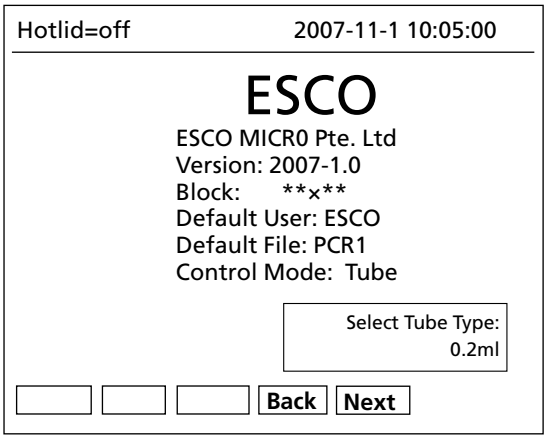


- Press **"Back"** to go back to the main interface.
- Press **"Accept"** to confirm the password .
- If it is mixed block SWT-MXP-BLC-2, press **"Accept"** to choose the test-tube type; pop-up tube type selection window.
- If it is not the mixed block SWT-MXP-BLC-2, and the current Control Mode is Block mode, press **"Accept"** to access the file run window; If the current control mode is Tube mode, press **"Accept"** to pop-up sample volume Settings window.

In this window, press **+/-** to choose the actual tube type.

- Press **"Back"** to go back to the main window.
- Press **"next"**. If the current control mode is Block Mode, click **"next"** to access file run window; if the current mode is Tube Mode, press **"next"** to pop up the following interface.

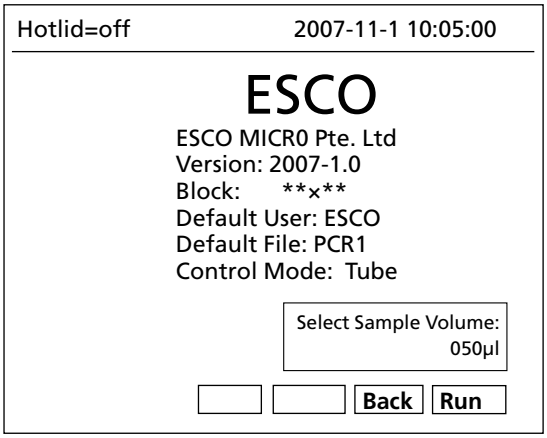
TUBE TYPE SELECTION



In this window, press **Character** to input the sample volume (Unit: Micro liter).

In Tube Mode, samples with different concentrations have different temperature overshoots and run times.

- Press **Run** to access the file run window.

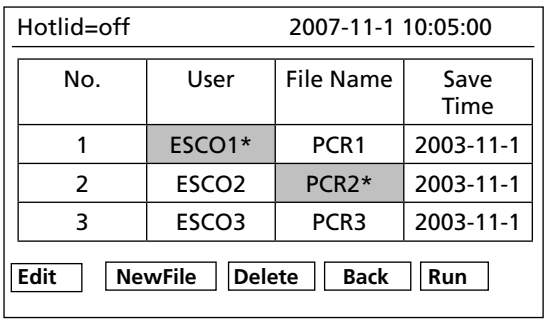


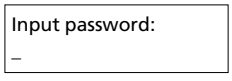
3.1.1 How to edit a PCR program?

Press **File** in the main window to access file list window. There are 3 files listed in the form as shown in the picture on the right. When the bar in the user column is flashing select user with the pop-up key. At this time, the File Name Column will display the selected files. Shift to the File Name Column, where the bar is flashing, then select the user file with the pop-up key.

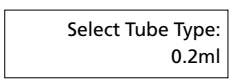
- Press **Edit** to edit the file, as indicated by the cursor.
- Press **New File** to edit a new file.
- Press **Delete** and the system will show **Confirm delete file**? Select **Delete,** or **Back**.
- Press **Back** to return to the main window interface.
- If the current file doesn't have password, press **"Run"** to access File Run window and tube type selection window; If the current file has password, press "**Run**", to pop up following dialog box.

FILE LIST WINDOW

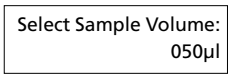




- If the module is mixed block, choose the tube type first; pop-up the following dialog box.



- If the current Control Mode is Block Mode, press **Ru**n to enter into File Run window. If the current Control Mode is Tube Mode, press **Run** and a dialog box will appear as follows:



The user can input Password, Tube type and Sample Volume (Unit: Micro liter) in the same way as before. Press **Back** to return to File List window. Press **Run** to access the file run window.

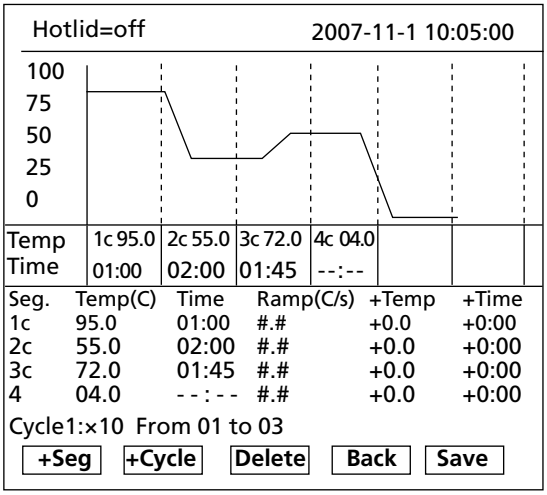
Note: *The sign "*"at the top of User and File shows that the current run file is the default file. This can be modified in the parameter setting window.*

In this window, you can edit sections and segments of the file. A File consists of sections and segments. The sections contain many segments, which you can set the cycler to run (refer to the figure).

Move the cursor by pressing **Up/Down** and **Right/Left**, and the position that the cursor reaches will be displayed in white on a black background.

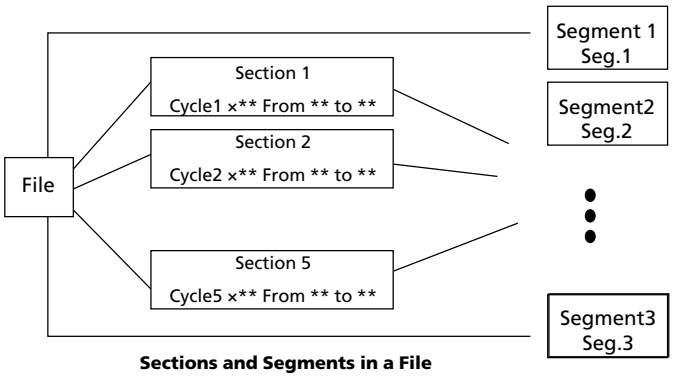
Press Digit & Letter to modify parameter settings. Press Function to change +/-, but +/- before the zero cannot be changed. Should you need to return to the main menu, press Save first then press **Main**.

FILE EDIT WINDOW



- Press **+Seg**. to access the segment edit menu. In each segment, you can set temperature (Temp.), duration (Time), ramp rate (Ramp) & temperature increment of each cycler (+Temp) and time increment of each cycler (+Time). Press **Delete** to delete the present segment.
- Press **+Cycle** to enter cycle edit window, where you can set cycle numbers and initial cycle segments. The figure shows a cycle from the first segment to the third one. There are a total of 10 cycles.
- Press **+Cycle** repeatedly to add sections (Max.: 5 sections). Press **Delete** to delete the present segment. Move cursor by pressing Up/Down to access the former segment, or the latter segment.
- Press **Save** to access the file save menu.
- Press **Back** to return to File List menu.

For a newly edited PCR program, save first and then run it, or the file can not be run.
When setting "Time" as --:--, the hot lid will close automatically when the block reaches the set temperature.
And the set temperature will remain until the PCR process is being stopped.



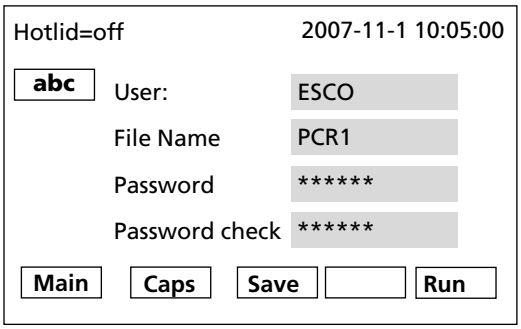
Sections and Segments in a File

In this window press **Digit & Letter** to access the file name.

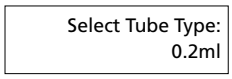
Press **Enter** to move the cursor forwards one position. Select User and File Name with the pop-up key. Click left button to delete characters and clicking the right hand button to move the cursor.

Press **CAPS** to shift between upper and lower case letter, and there will be a capital or small letters, as shown on the top left of the screen. Press **Main** to return to the main menu.

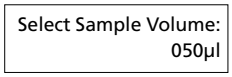
FILE SAVE WINDOW



- Press **Save** to save the file. When the file is saved, the system will display "File has been saved", please continue another operation. Press **Enter** to cancel the reminder. If the file was used, the system will remind you to rename Rename, or **Save**.
- If the module is mixed block, choose the tube type first; pop-up the following dialog box.



- If the current Control Mode is Block Mode, press RUN to access the File Run Window. If the current Control Mode is Tube Mode, press RUN. The following dialogue box will appear:



The user can input Tube type and Sample Volume (Unit: Micro liter) the same way as in the main interface.

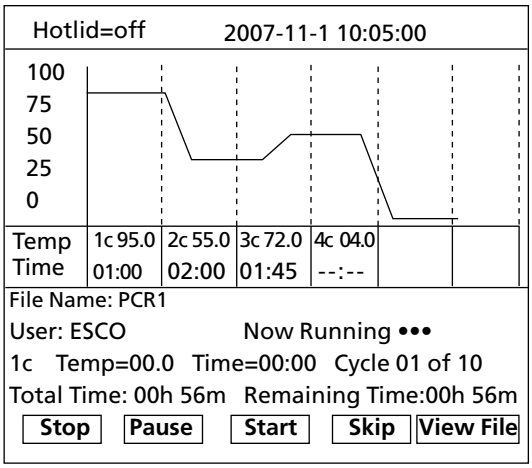
- Press BACK to return to the File List window.
- Press RUN to enter into file run Window

Note: *Set password as 0~9 number characters*

While the file is running, **NOW RUNNING** will flash continuously. When the run ends, the system will specify F**ILE RUN OVER**. Press **STOP**: The message **CONFIRM STOP RUNNING** appears.

- Select **STOP** or **START**.
- Press **PAUSE**: The message **NOW PAUSE RUNNING** appears. Select **START** to continue. If you don't make a selection within 100 seconds, the run will continue automatically.
- Press **VIEW FILE** to view edited PCR programs.
- Press **SKIP** to stop the current temperature and to run the next.

FILE RUN WINDOW



3.1.2 How to set system parameters?

SYSTEM PARAMETER SETTING WINDOW

Hotlid=off	2007-11-1 10:05:00
Date:	03-10-22
Time:	14:53:19
Default User:	PCR1
Default File:	ESCO
Control Mode:	Block
Hotlid:	off
Key Sound:	Yes
Run End Sound:	Yes

Default | | | **Back** | **Save**

In the main window press **SYSTEM** to enter the system parameter set interface.

Press **ENTER** to shift the cursor to next item. This is followed by the symbol

Press **UP / DOWN** to scroll to the option you wish to select. Other information can be accessed by pressing **DIGIT & LETTER**. Press **RIGHT/LEFT** to change the cursor's position.

- Press **BACK** to go back to the main menu.
- Press **SAVE** to save the parameters.
- Press **Default** to restore the default files (Standard PCR, Gradient PCR, Touch Down PCR, etc.)

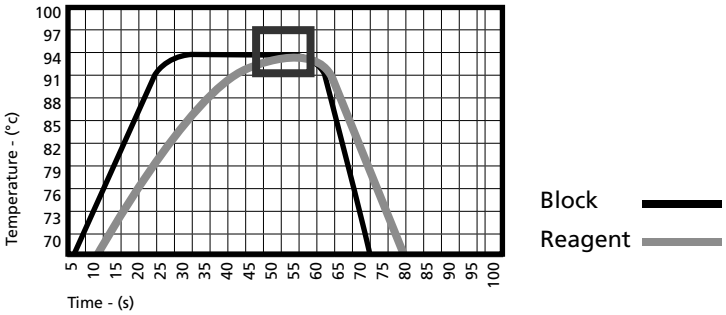
Note: *After setting the parameters press SAVE, or the parameters will not be saved*

3.1.2.1 Date and Time: Default time after power-on.

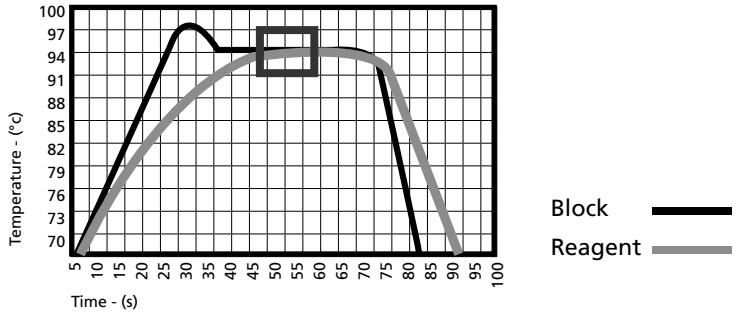
3.1.2.1 Default File and Default User Name: and user of the default protocol after power-on.

3.1.2.3 Control Mode: Default control model after power-on., including two optional modes, called Block and tube.

Block mode: Simple temperature control during cooling & heating. When compared to the cooling & heating rate of the reaction. In this mode, the actual change of the reagent's temperature in the reaction tube is different from the actual set parameters. The actual time for reagent to reach & hold the set temperature is shorter than the set time. (Refer to the following figure showing the relation between block temperature and reaction temperature)



Tube mode: There is an overshoot after reaching the set temperature. With the same set time as Block, the actual time for the reaction to maintain the set temperature is longer. (Refer to the following figure showing the relationship between the block temperature and reaction temperature)



Note: *After setting the parameters, press "Save" to confirm the settings.*

Before using the instrument, re-set the clock to your local time.

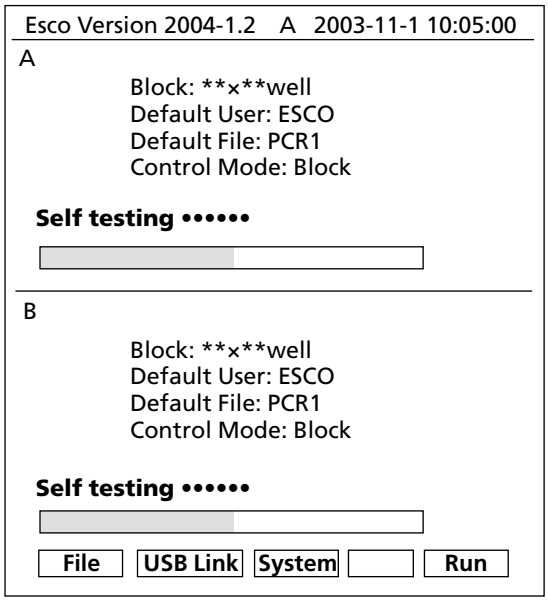
3.1.2.4 Hot lid: Hot Lid Open or closed

3.1.2.5 Key Sound and Run End Sound: The sounds when pressing a key after the end of the run.

3.2 HOW TO RUN A DUAL- BLOCK PCR PROGRAM

Turn on the power. The Thermal Cycler will beep twice. The screen will display Self Testing •••••• and the instrument will do a self- test for 1 – 2 minutes. After the self test, the screen will display the main interface.

MAIN WINDOW



Dual block means two blocks: Block A and B. Press **Shift** to operate block A or B at the same time.

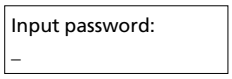
For example, to operate block A:

The block that is currently active is diplayed on the top center of the screen. The screen on the right shows the control is **A**.

Press **Shift** to change the control.

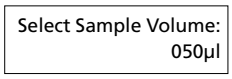
The central area of the main screen displays the types of blocks A & B, the default file, default user, control mode and sample volume.

- Press **File** to enter file list screen.
- Press **System** to enter system parameter setting screen.
- If the current file doesn't have password, press **"Run"** to access File Run window; If the current file has password, press **"Run"**, to pop up following dialog box.



As same as single block, press "**Back**" to go to the main window. Press**"Accept"** to confirm the password.

- If the current Control Mode is Block Mode, press **Run** to access File **Run** Interface. If the current Control Mode is Tube Mode, press **Run** The following dialogue box appears:



The user can input Sample Volume (Unit: Micro liter) through the main menu. Press **Back** to return to File List screen. Press **Run** to access the file run screen.

3.2.1 How to edit a PCR program?

In the main menu press **File** to enter file list menu.

There are 3 files listed in the table, as shown in the picture. When the bar in the User Column is flashing, select the users with the pop-up key. At this time, the File Name Column will display the files of the selected users. Go to the File Name Column, where the bar is flashing. Select user file with the pop-up key.

- Press **Edit** to edit the file highlighted by the cursor
- Press **New File** to edit a new file
- Press **Delete** The system will prompt "Confirm delete file?" Select **Delete** or **Back**
- Press **Back** to return to the main menu.
- If the current file doesn't have password, press **"Run"** to access File Run window; If the current file has password, press **"Run"**, to pop up following dialog box.

FILE LIST WINDOW

ESCO Version 2004-1.2 A 2003-11-1 10:05:00

No.	User	File Name	Save Time
1	ESCO1*	PCR1	2003-11-1
1	ESCO2	PCR2*	2003-11-1
1	ESCO3	PCR3	2003-11-1

B Block: **x**well
Default User: R
Default File: PCR2
Control Mode: Block

Edit **NewFile** **Delete** **Back** **Run**

Input password:
_

As same as single block, press **"Back"** to go to the main window. Press**"Accept"** to confirm the password.

- If the current Control Mode is Block Mode, press **Run** to enter into the File Run menu. If the current Control Mode is Tube Mode, press **Run**. The following dialogue box will appear:

Select Sample Volume:
050µl

The user can input Sample Volume (Unit: Micro liter) through the main menu. Press **Back** to return to File List menu. Press **Run** to access the file run menu.

Note: *The sign "*" at the top of User and File shows that the current run file is the default file. This can be changed through the parameter set menu.*

In this menu move the cursor by pressing Up/Down and Right/ Left. The position of the cursor is displayed in white on a black background.

Press **Digit & Letter** to modify parameter settings. Press **Function** to change +/-, but +/- before a zero cannot be modified. Should you need to return to the main menu, first press **Save**, then press **Main**

- Press **+ Seg.** to access the segment edit menu. In each segment, the temperature (Temp.), duration (Time), Ramp rate (Ramp), temperature increments and time increment of each cycler (+Time).
- To delete the current segment: Press **Delete**
- Press **+Cycle** to access the cycler edit menu, from where you can set cycle numbers and initial cycle segment. The figure shows cycles from the first to the third segment. There are a total of 10 cycles.
- Press **+Cycle** to repeat adding sections (max: 5 sections)

FILE EDIT WINDOW

Hotlid=off 2007-11-1 10:05:00

Seg.	Temp(C)	Time	Ramp(C/s)	+Temp	+Time
1c	95.0	01:00	#.#	+0.0	+0:00
2c	55.0	02:00	#.#	+0.0	+0:00
3c	72.0	01:45	#.#	+0.0	+0:00
4	04.0	- - : - -	#.#	+0.0	+0:00

Cycle1:×10 From 01 to 03

B Block: **x**well
Default User: ESCO
Default File: PCR2
Control Mode: Block

+Seg **+Cycle** **Delete** **Back** **Save**

- Press **Save** to access file save menu.
- Press **Back** to return to File List menu.

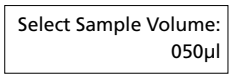
Note: *1. For the newly edited PCR programs, save first and then run them, otherwise the file cannot be run.*

2. When setting "Time" as "--:--", the hot lid will close automatically when the block reaches the target temperature. And the set temperature will remain until the PCR process is being stopped.

In this window press **Digit & Letter** to access the file name. Press Enter to move the cursor forward. Select User and File Name with the pop-up key. Click the left button to delete characters while clicking right button to move the cursor. Press Caps to shift between upper and lower case.

Press **Main** to return to the main menu.

- Press **Save** to save the file. When the file is saved, the system will prompt "File has been saved. Please continue with another operation" Press **Enter** to cancel. If the file has been used, the system will remind you to **Rename** or to **Save**.
- If the current Control Mode is Block Mode, press **Run** to enter into File Run window. If the current Control Mode is Tube Mode, press **Run** and the following dialog box will appear:



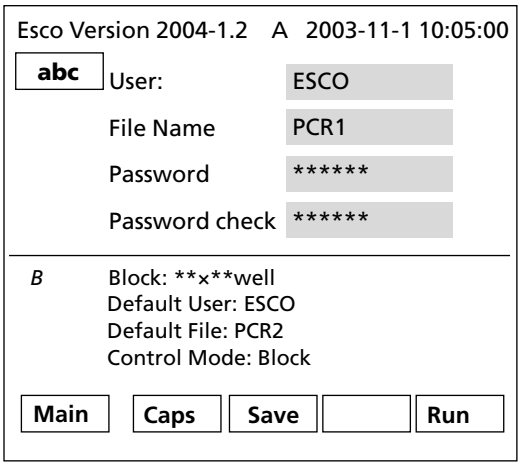
The user can input Sample Volume (Unit: Micro liter) the same way as before. Press **Back** to return to the File List menu. Press **Run** to access the file run menu.

Note: *Please set password as 0~9 number characters.*

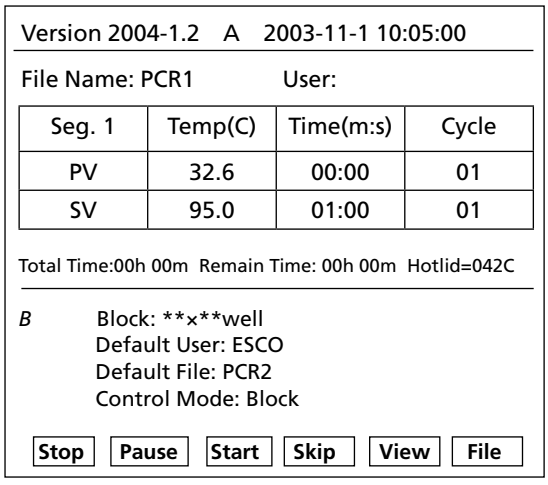
When the files overlap, the system will show **File run over**

- Press **Stop**. Confirm stop running? Select **STOP** or **START**.
- Press **Pause**: Pause run Select **START** to continue. If you don't make a decision within 100 seconds, the system will automatically continue running
- Press **View File** to view edited PCR programs
- Press **Skip** to stop current temperature and run the next.

FILE SAVE WINDOW



FILE RUNNING WINDOW



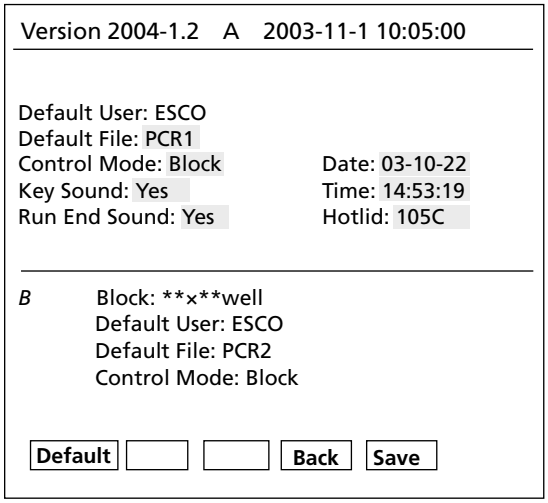
3.2.2 How to set system parameters?

In the main menu press **System** to enter system parameter setting menu.

Press **Enter** to move the cursor to next item. The option is followed by the symbol . Press **Up/Down** to scroll to the relevant the option. Other information can be entered by pressing **Digit & Letter**. Press Right/Left to move the cursor's position.

- Press **Back** to return to the main menu.
- Press **Save** to save parameters
- Press **Default** to restore the default files (Standard PCR, Gradient PCR, Touch Down PCR, etc.)

SYSTEM PARAMETER SETTING MENU



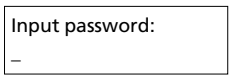
Note: *1. After setting the parameters, press Save, otherwise the parameters will not be saved.*

2. Reset the internal clock to your local time.

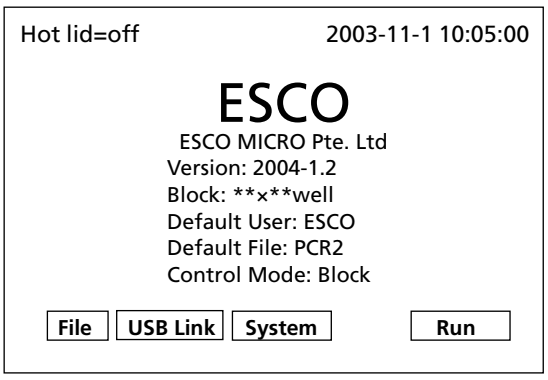
3.3 HOW TO RUN A GRADIENT BLOCK PCR PROGRAM

Turn on the power. The Thermal Cycler will beep twice. The screen will display **Self Testing ••••••**.The self-test is about 1~2 minutes following which the screen will display the main menu.

- Press **File** to enter file list menu.
- Press **System** to enter system parameter set menu.
- If the current file doesn't have password, press **"Run"** to access File Run window; If the current file has password, press **"Run"**, to pop up following dialog box.

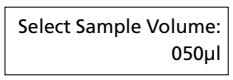


MAIN MENU



As same as single block, press **"Back"** to go to the main window. Press **"Accept"** to confirm the password.

- If the Control Mode is Block Mode, press **Run** to enter the File **Run** menu. If the Control Mode is Tube Mode, press **Run**. The dialogue box below will appear:



The user can input Sample Volume (Unit: Micro liter) in the same way as through the main menu. Press **Back** to go back to File List menu; Press **Run** to enter into file run menu.

3.3.1 How to edit a PCR program?

Press **File** in the main menu to access the file list menu. There are 3 files listed as shown in the picture. When the bar is flashing in the User Column, select the users with the pop-up key.

At this point, the File Name Column will display the relative files of the selected user. Shift to the File Name Column with the flashing bar, then select relative user's file with the pop-up key.

FILE LIST WINDOW

Hot lid=off 2007-11-1 10:05:00

No.	User	File Name	Save Time
1	1	PCR1	2003-11-1
2	2	PCR2*	2003-11-1
3	3	PCR3	2003-11-1

Edit **New File** **Delete** **Back** **Run**

- Press **Edit** to edit the highlighted file.
- Press **New File** to edit a new file.
- Press **Delete** The alarm will sound. Confirm delete file? Select **Delete** or **Back**
- Press **Back** to return the main menu
- If the current Control Mode is Block Mode, press **Run** to enter into File Run menu. If the selected Control Mode is Tube Mode, press **Run**, and the following dialogue box will appear.

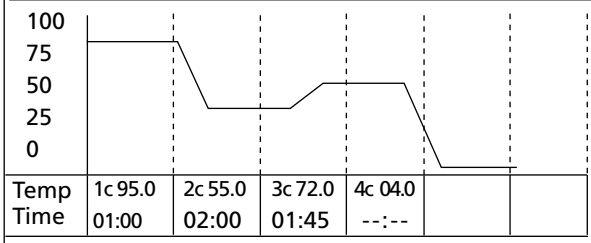
  Select Sample Volume:
  050µl

- The user can input Sample Volume (Unit: Micro liter) in the same way as shown in the main menu. Press **Back** to return to File List menu; Press **Run** to access the file run menu.

Note: *The sign"*"at the top of User and File shows that the current run file is the default file. This can be modified in the parameter setting menu.*

FILE EDIT WINDOW

Hotlid=off 2007-11-1 10:05:00



Seg.	Temp(C)	Time	Ramp(C/s)	+Temp	+Time	Grad
1c	95.0	01:00	#.#	+0.0	+0:00	02
2c	55.0	02:00	#.#	+0.0	+0:00	02
3c	72.0	01:45	#.#	+0.0	+0:00	02
4	04.0	- - : - -	#.#	+0.0	+0:00	00

Cycle1:×10 From 01 to 03

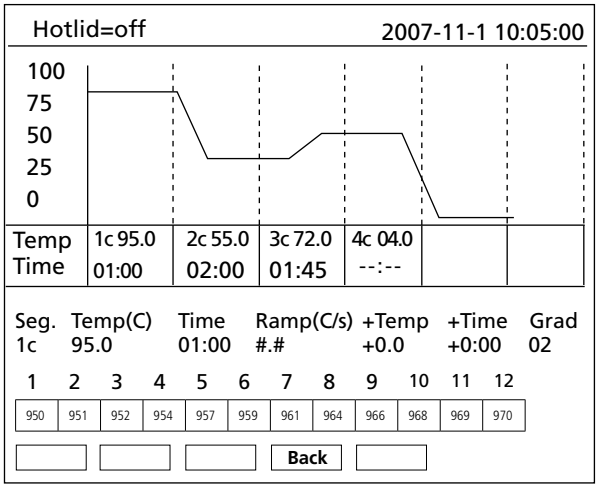
+Seg **+Cycle** **Delete** **Back** **Save**

In this window, move the cursor by pressing Up/Down and Right/Left. The cursor position will be displayed in white on a black background. **Press Digit & Letter** to modify parameter settings. Press **Function** to change +/-, but +/-. The zero cannot be modified.

Should you need to return to the main menu, press **Save** then press **Main**.

- Press **+Seg**. To access the segment edit interface. The set temperature (Temp.), duration (Time), Ramp rate (Ramp), temperature increment of each cycler (+Temp) and time increment of every cycler (+Time) can be set. Press **Delete** to delete the current segment.
- Press **+Cycle** to access the cycle edit menu, where you can set cycle numbers and initial cycle segment. The figure shows a cycle from the first to the third segment. There are totally 10 cycles.

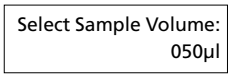
- Press **+Cycle** repeatedly to add sections (Max.: 5). Press **Delete** to delete the current segment. Move the cursor by pressing Up/Down to access the previous or latter segment.
- Press **Save** to access the FILE SAVE menu.
- Press **Enter** to check the gradient details. (There will be no response if the Grad is 00.) Please refer to the following picture.
- Press **Back** to access the file run window.



Note: *For newly edited PCR programs, save first then run or the files cannot be run. When setting Time as "--:--", the hot lid will be closed automatically when the block reaches the target temperature. And the set temperature will remain untill the PCR process is being stopped.*

In this menu press Right/Left to access the file name. Press **Enter** to move the cursor forward one position. Select User and File Name with the pop-up key. Click left button to delete characters; Click the right button to move the cursor. Press Caps to shift between upper and lower Press **Main** to return to the main menu.

- Press **Save** to save the file. When the file is saved, the system will prompt "File has been saved". Please continue another operation", Press **Enter** to cancel the prompt. If the file was used, the system will remind you to rename **Rename** or **Save**.
- If the current Mode is Block Mode, press Run to access file run window. If the current Mode is Tube Mode, press Run and the following dialog box will appear.

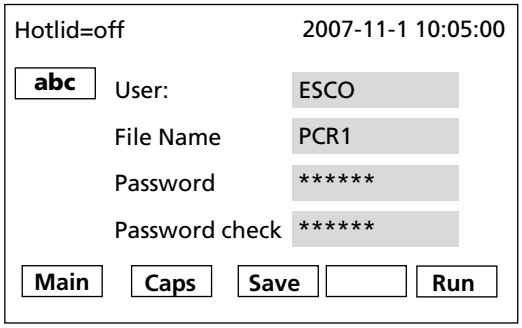


The user can input Sample Volume (Unit: Micro liter) in the same way as before. Through the main menu. Press **Back** to return to File List menu. Press Run to access the file run menu.

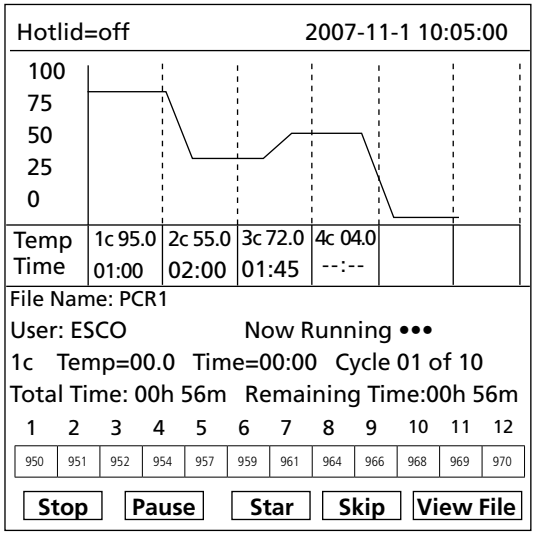
When the file is running, ••• at Now Running will flash continuously. When the run is over, the system will prompt File run over.

- Press **Stop** and a "Confirm stop running?" prompt will appear. Select **Stop** or **Start**.
- Press **Pause** the Now pause running prompt will appear. Select **Start** to continue. If you don't select within 100 seconds, the system will automatically continue running.
- Press **View File** to view the edited PCR programs.
- Press **Skip** to stop the current temperature and to run the next.

FILE SAVE WINDOW



FILE RUN WINDOW



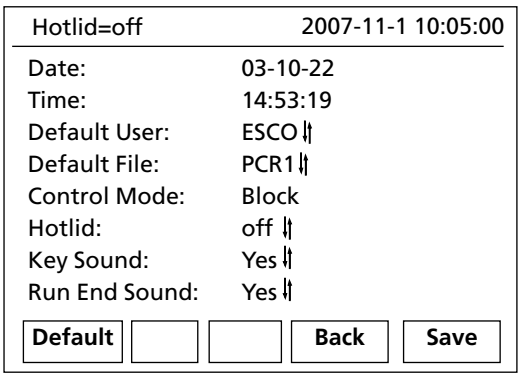
3.3.2 How to set system parameters?

In the main menu press **System** to access the system parameter setting menu.

Press **Enter** to move the cursor to next item. The option is followed by the symbol ⬆⬇. Press **Up/Down** to scroll to select. Other information can be entered by pressing **Digit & Letter** Press Right/Left to move the cursor.

- Press **Back** to return to the main menu.
- Press **Save** to save parameters.
- Press **Default** to restore the default files (Standard PCR, Gradient PCR, Touch Down PCR, etc.)

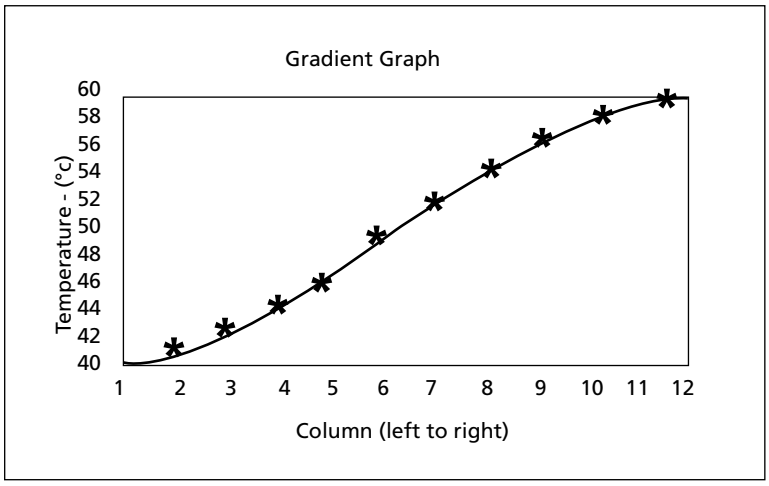
SETTING SYSTEM PARAMETERS



Note: *After the parameters have been set, press SAVE, or the parameters will not be saved.*

3.3.3 Properties of the Gradient Block

The gradient block uses a 3-group peltier unit. The gradient temperature appears as a curve distribution, as shown in the following figure (Set temp is 40°C, and the gradient set temp is 20°C). The gradient temperature distribution among the individual wells is not even. The temperature difference in the middle of the block is greater than that of the extremities. Refer to the temperature displayed on the instrument for individual well's temperature when operating the block.



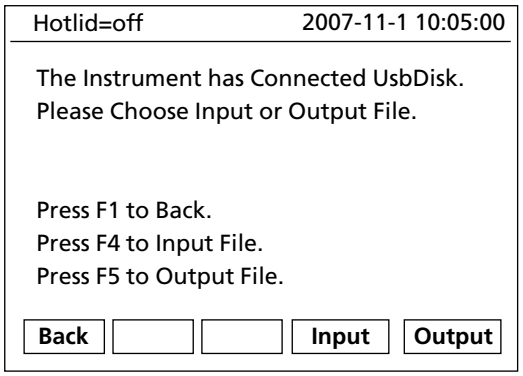
3.4 HOW TO IMPORT AND EXPORT THE PCR PROGRAM

3.4.1 Data transfer by USB memory stick

Press **"Usb link"** in the main window to access the USB Link Window. If USB is inserted, information will appear as right fig.

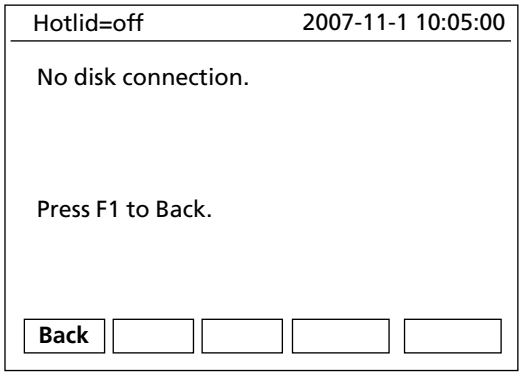
- Press **"Back"** to go back to the main Window.
- Press **"Input"** to choose file from USB, USB user list will be displayed.
- Press **"Output"** to choose file which will be copied to USB, local file user list will be displayed.

USB LINK WINDOW



If no USB memory stick is inserted, information will appear as right fig. Press **"Back"** to go back to the main window.

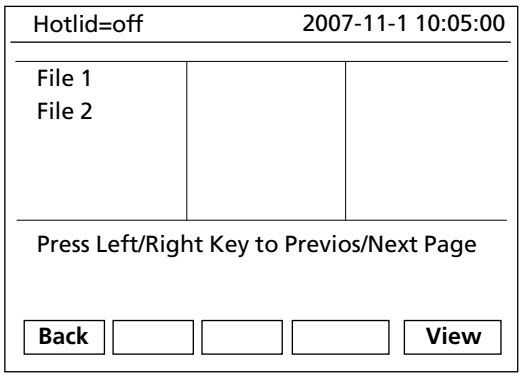
USB LINK ERROR WINDOW



3.4.2 Import file from USB memory stick

- Press **"Back"** to go back to the USB link window.
- Press **up/down** cursor to choose user.
- If the users are more than 30, press **left/right** cursor to previous/next page.
- Press **"View"** to display USB file list.

USB USER LIST



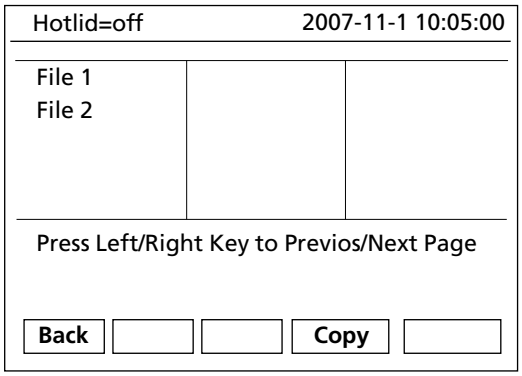
- Press **"Back"** to go back to USB user list window.
- Press **up/down** cursor to choose the file which will be imported from USB memory stick.
- If the files are more than 30, press left/right cursor to previous/ next page.
- Press **"Copy"** to input file from USB memory stick.
- If copy the file from USB successfully, the following dialog box will appear.

  File Saved

  Otherwise display:

  File input error

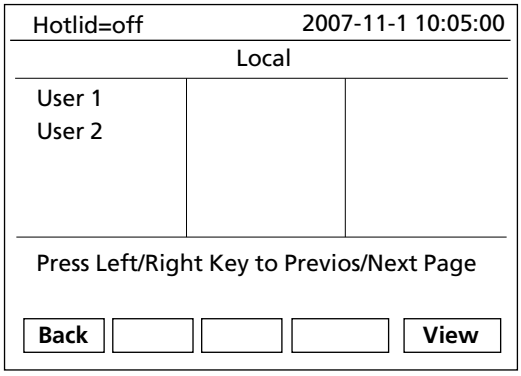
USB USER LIST



3.4.3 Export file to USB flash memory

- Press **"Back"** to go back the USB link window.
- Press **up/down** cursor to choose the user.
- If the users are more than 30, press **left/right** cursor to previous/ next page.
- Press **"View"** key to display Instrument file list.

INSTRUMENT USER LIST



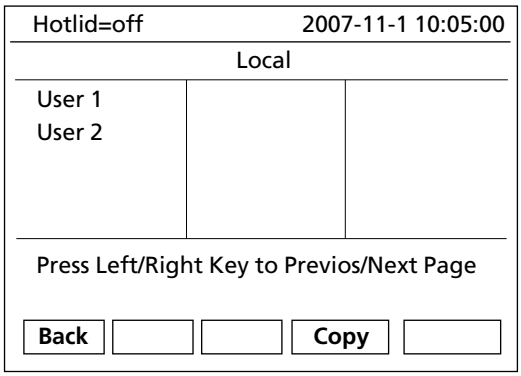
- Press **"Back"** to go back to instrument user list window.
- Press **up/down** cursor to choose the file which will be exported to USB.
- If the files are more than 30, press **left/right** cursor to previous/ next page.
- If save the file to USB memory stick successfully, display the following dialog box.

  File Saved

  Otherwise display

  File input error

INSTRUMENT FILE LIST



- Press **"View"** key to display USB file list.

Note: *USB users are up to 500, files for each user are up to 2000.*

Every user has separate folder under usb-> Esco.

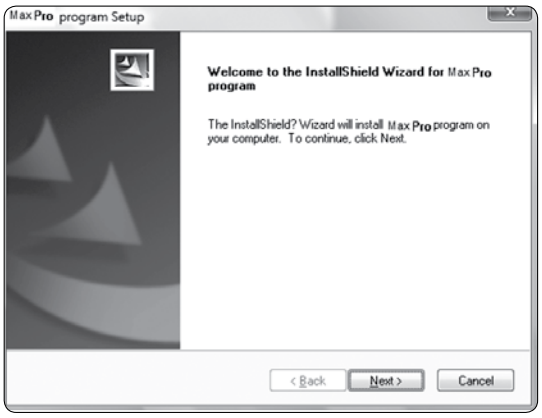
Don't insert and then immediately pull out USB memory stick. If do so, in order to protect both instrument and USB memory stick, the USB link function will not available until the next time when instrument power on.

The operations for dual block are as same as single block, and the USB link function is only available when main window is displayed.

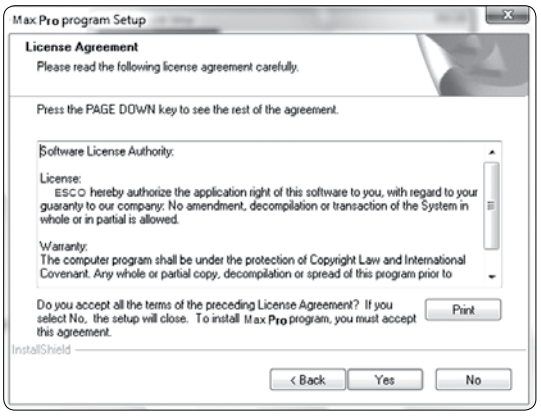
CHAPTER 4
COMPUTER CONNECTION

4.1. SOFTWARE INSTALLATION

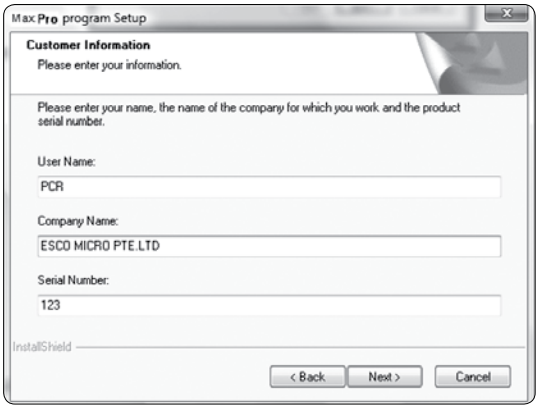
Double click **"Setup.exe"** to install MaxPro PC software which can control up to 30 sets of MaxPro Thermal Cyclers simultaneously through one computer.


Max Pro program Setup
Welcome to the InstallShield Wizard for Max Pro program
The InstallShield? Wizard will install Max Pro program on your computer. To continue, click Next.
< Back
Next >
Cancel

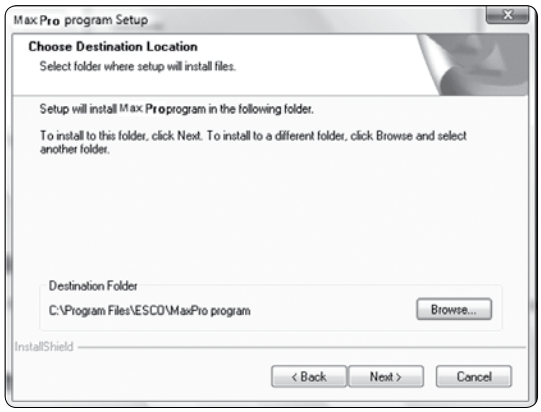
Click **Next** Button,


Max Pro program Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
Software License Authority:
License:
ESCO hereby authorize the application right of this software to you, with regard to your guaranty to our company: No amendment, decompilation or transaction of the System in whole or in partial is allowed.
Warranty:
The computer program shall be under the protection of Copyright Law and International Covenant. Any whole or partial copy, decompilation or spread of this program prior to
Do you accept all the terms of the preceding License Agreement? If you select No, the setup will close. To install Max Pro program, you must accept this agreement.
Print
InstallShield
< Back
Yes
No

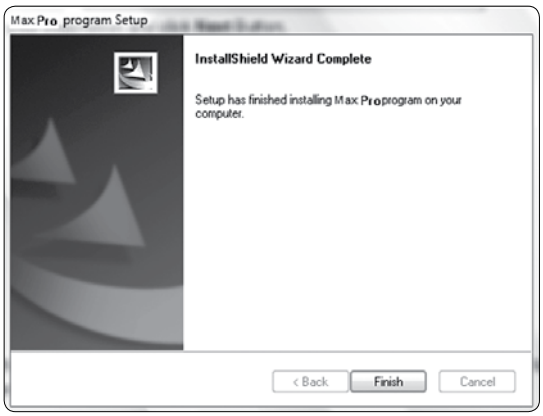
Click **Yes** Button to accept all the terms of the agreement,



Complete your information and click Next Button,


Max Pro program Setup
Choose Destination Location
Select folder where setup will install files.
Setup will install Max Proprogram in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\ESCO\MaxPro program
Browse...
InstallShield
< Back
Next >
Cancel

Choose the installation destination folder, and then click **Next** button, the default folder is C:\Program Files\ESCO\ MaxPro program



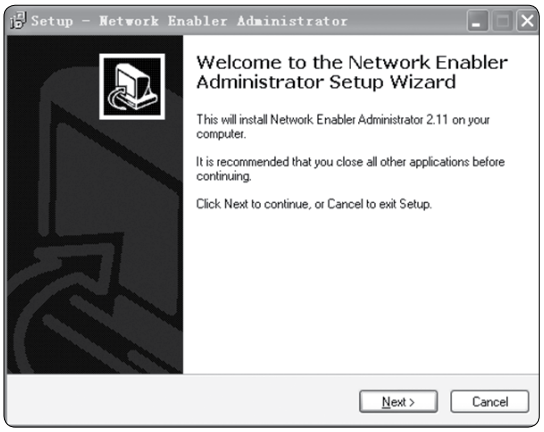
Click **Finish** button to install the software successfully.

4.2. NETWORK ENABLER SETUP

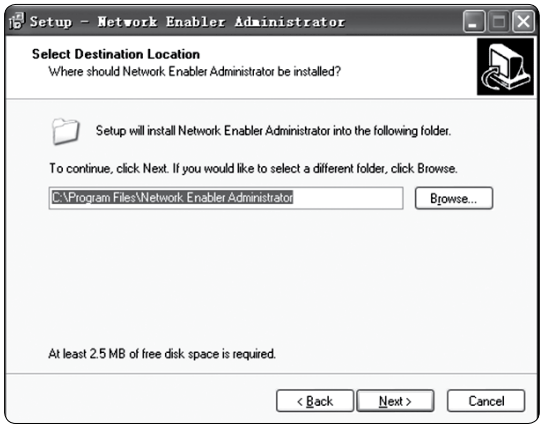
MaxPro has configurable embedded internal network modules, which provide the corresponding tools for Network Enabler setting up.

4.2.1 Network Enabler Administrator installation

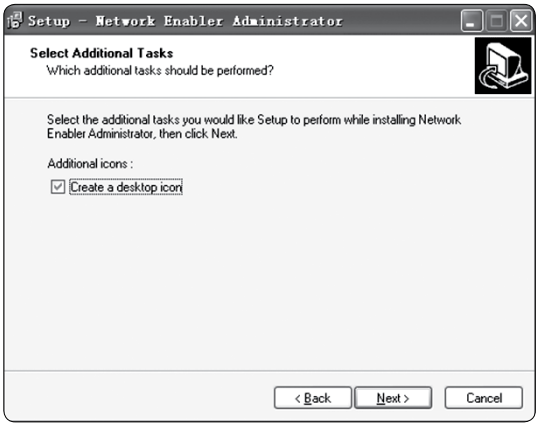
Double click **"need_setup.exe"** to install the software


Setup - Network Enabler Administrator
Welcome to the Network Enabler Administrator Setup Wizard
This will install Network Enabler Administrator 2.11 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

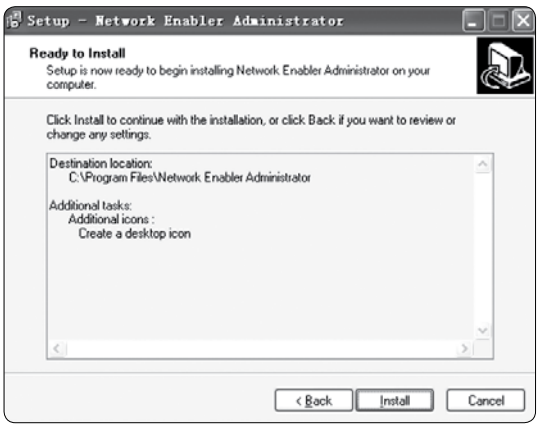
Click **Next** button.


Setup - Network Enabler Administrator
Select Destination Location
Where should Network Enabler Administrator be installed?
Setup will install Network Enabler Administrator into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\Network Enabler Administrator
Browse...
At least 2.5 MB of free disk space is required.
< Back
Next >
Cancel

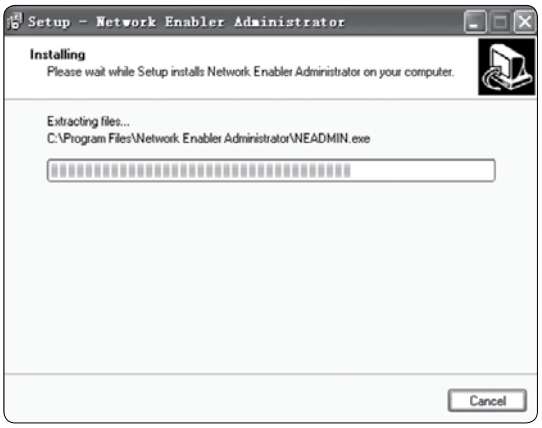
Choose installation Destination, click **Next** button.


Setup - Network Enabler Administrator
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing Network Enabler Administrator, then click Next.
Additional icons :
Create a desktop icon
< Back
Next >
Cancel

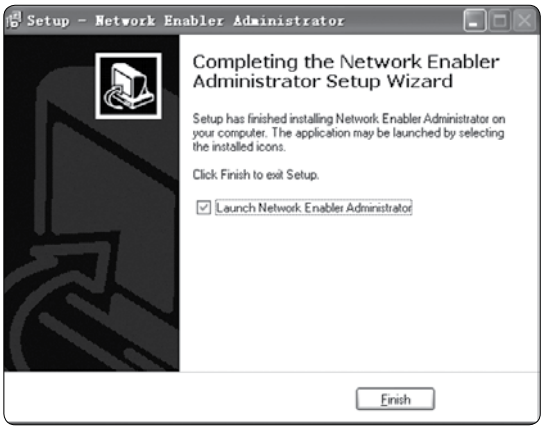
Click **Next** button.


Setup - Network Enabler Administrator
Ready to Install
Setup is now ready to begin installing Network Enabler Administrator on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\Network Enabler Administrator
Additional tasks:
Additional icons :
Create a desktop icon
< Back
Install
Cancel

Click **Install** button.


Setup - Network Enabler Administrator
Installing
Please wait while Setup installs Network Enabler Administrator on your computer.
Extracting files...
C:\Program Files\Network Enabler Administrator\NEADMIN.exe
Cancel

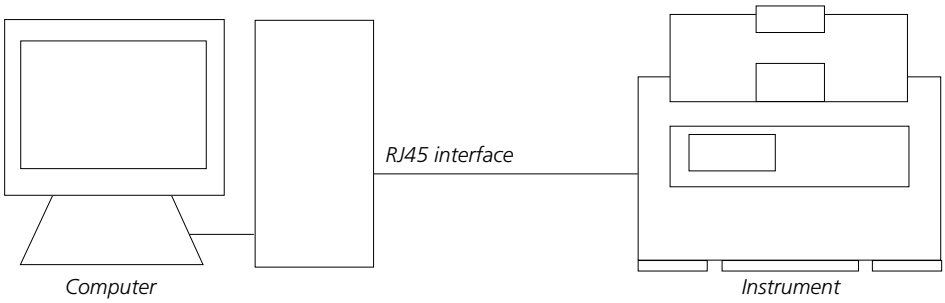
Installation finished, click **Finish** button.


Setup - Network Enabler Administrator
Completing the Network Enabler Administrator Setup Wizard
Setup has finished installing Network Enabler Administrator on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch Network Enabler Administrator
Finish

4.2.2 Configure your equipment

4.2.2.1 Connect to Computer

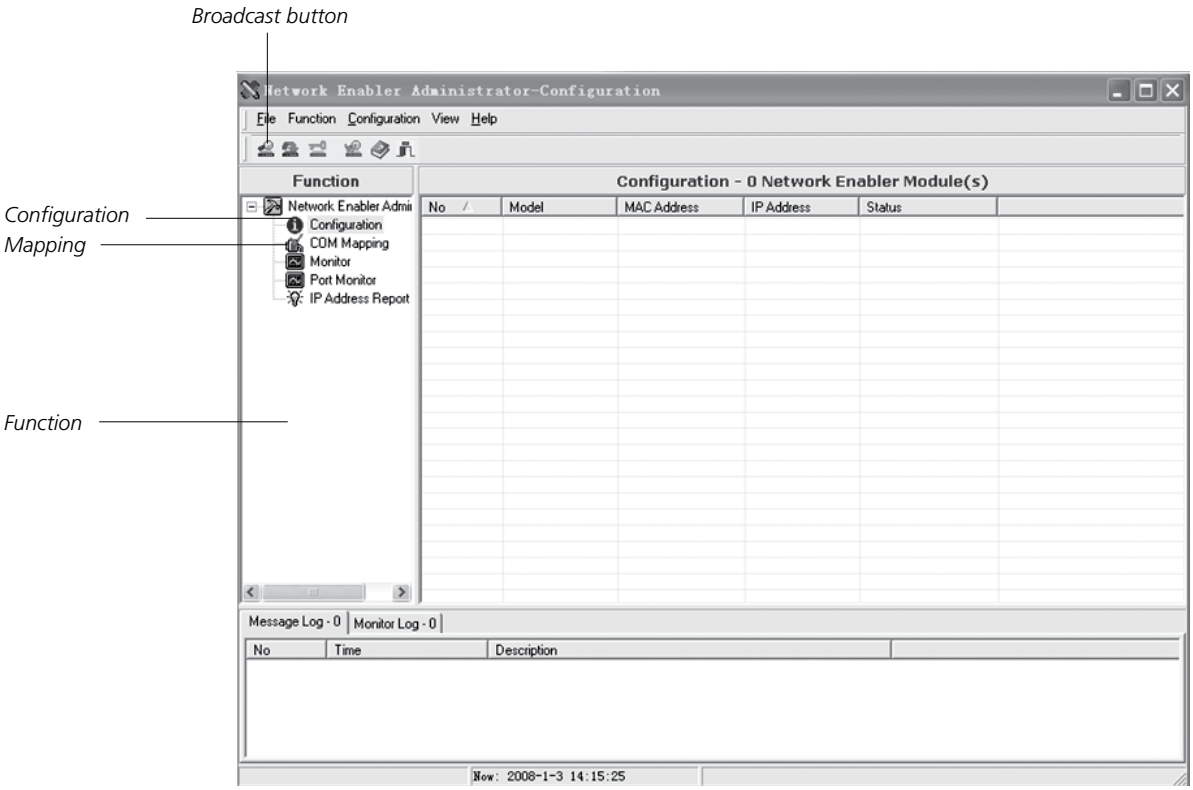
Connect the equipment to computer through RJ45 interface (Cross, Class B Connection)



Note: *There are two internet cables inside the box, one is black and the other one is Gray. If the PC only connects one unit directly, please choose the gray color cable, and the black color cable is for multiple units controlled via HUB. Before use black cable to control up to 30 thermal cyclers, please connect PC with every thermal cycler one by one and do the following setup.*

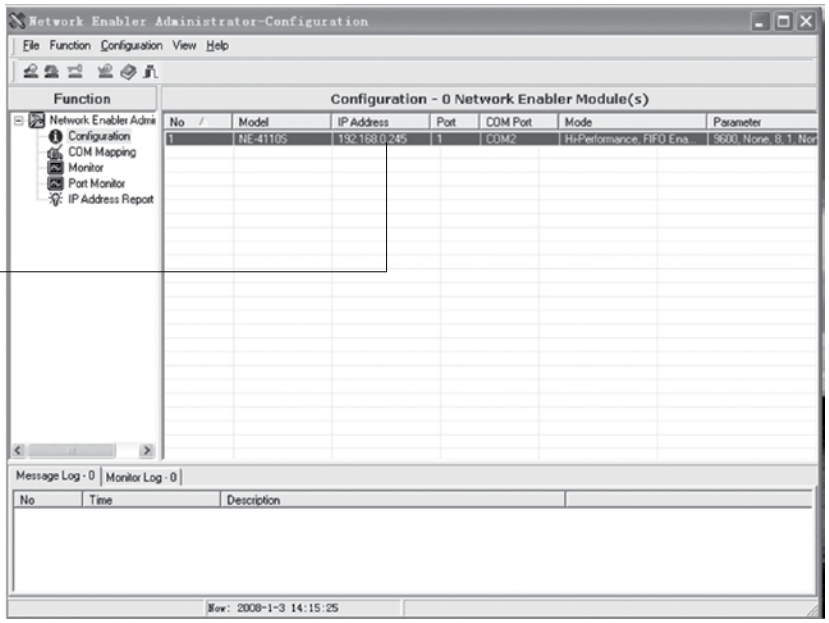
Note: *PC requirements: WinXP/ Win2000 operation system.*

4.2.2.2 Run Network Enable Administrator

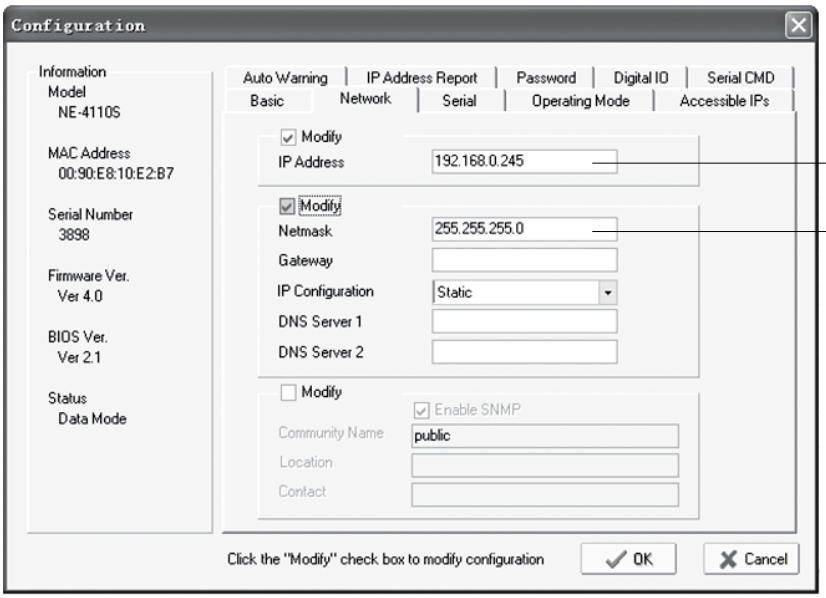


4.2.2.3 Configuration

Click the **Broadcast button**, the software will search equipment automatically.

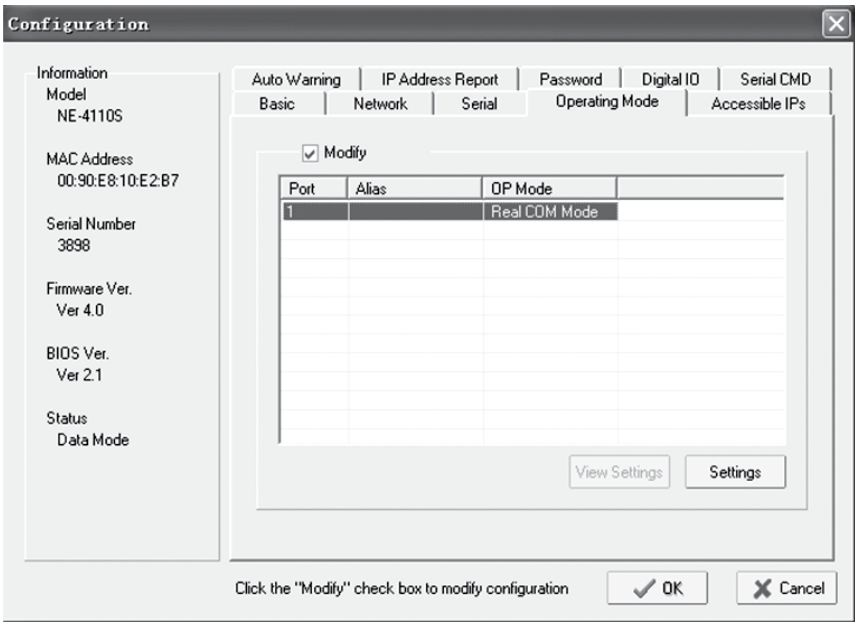


Double-click the searched IP on the column and choose the **Network** option.

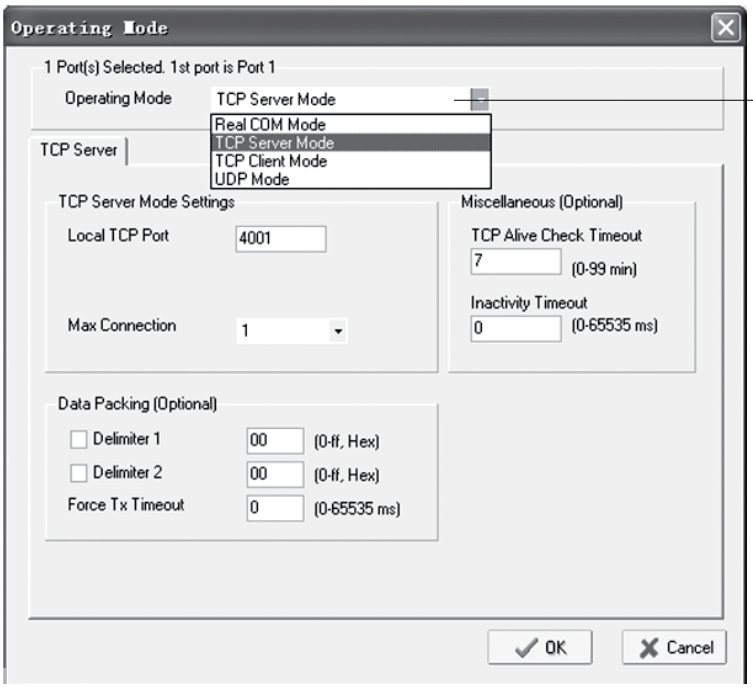


Note: *IP address can be set as 192.168.0. XXX, which means we can change the last 3 digitals from 1 to 255. If only connect to one thermal cycler, you can leave it as 192.168.0. 245 as default, and if for more units, please connect PC with every unit one by one and set for different IP addresses for each unit.*

Choose **Operating Mode** option, then click **Settings** button.



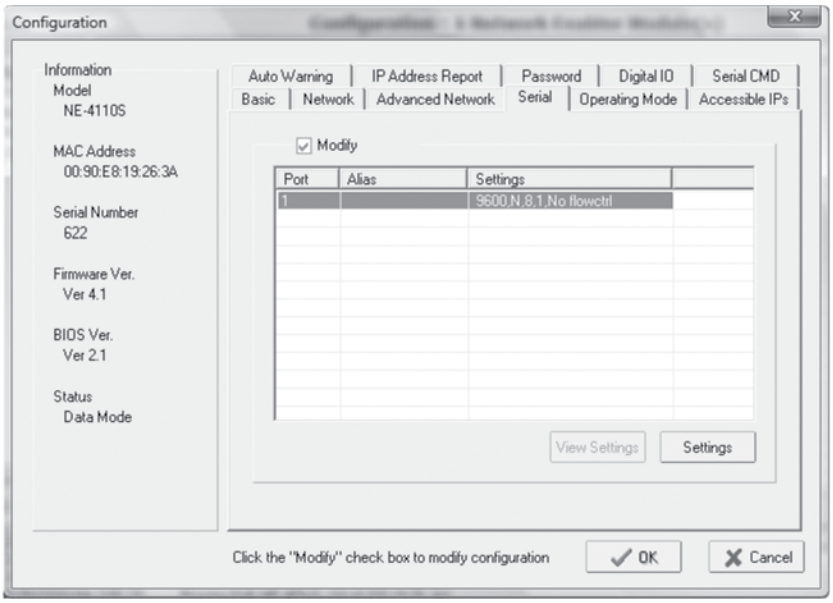
Click the pop-up button on the right side of **Operating Mode,** and Choose **TCP Server Mode.**



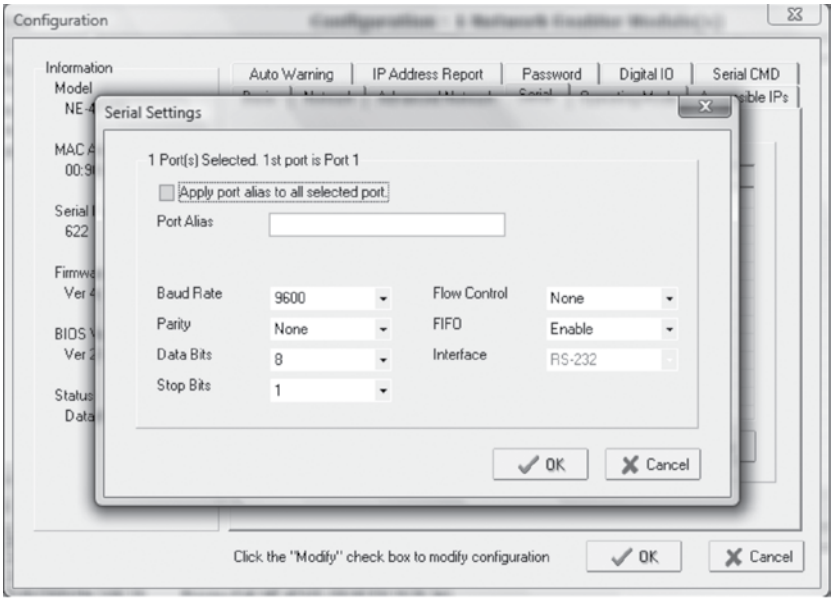
Choose TCP Server Mode

Single click **OK** button, IP address setting is finished.

Choose **Serial** Option, tick **Modify**, and choose the showed information as below to make it in blue. And then click **Setting** button.

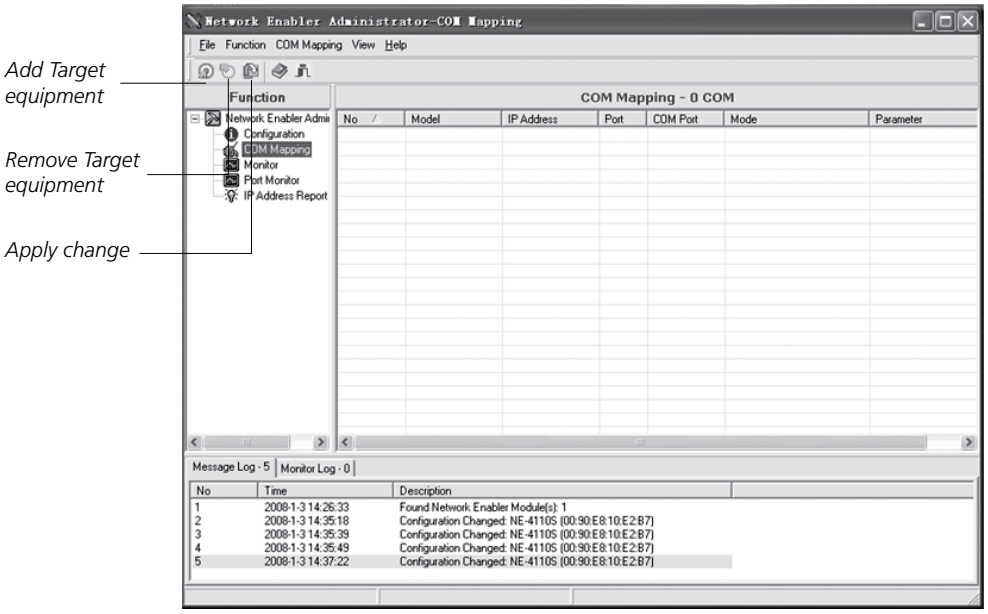


Set up as the following Fig.

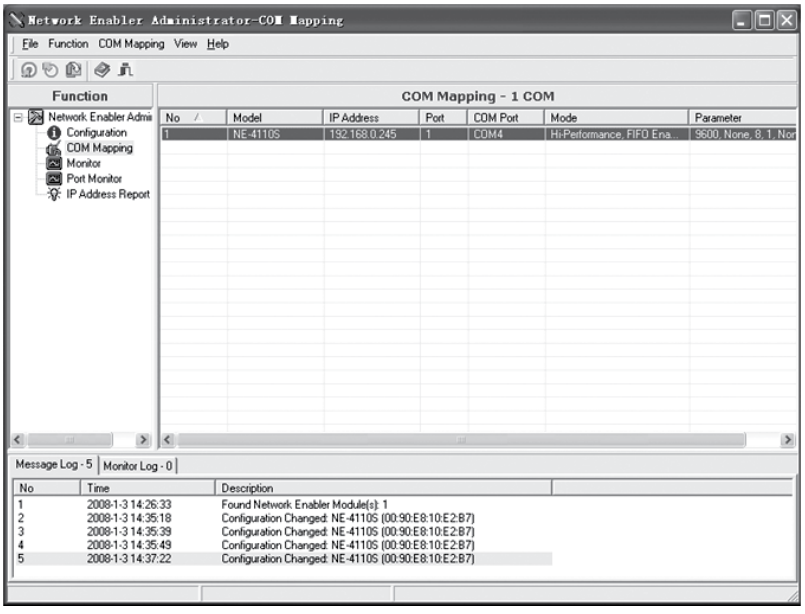


Click **OK** to confirm

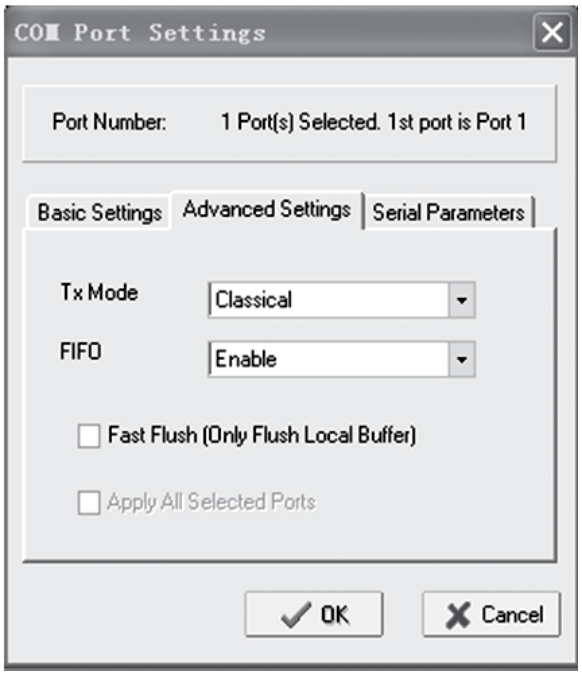
Click **COM MAPPING** in the function list,


Add Target equipment
Remove Target equipment
Apply change
Network Enabler Administrator-COM Mapping
File Function COM Mapping View Help
Function
COM Mapping - 0 COM
Network Enabler Admi
Configuration
COM Mapping
Monitor
Port Monitor
IP Address Report
No / Model IP Address Port COM Port Mode Parameter
Message Log - 5 Monitor Log - 0
No Time Description
1 2008-1-3 14:26:33 Found Network Enabler Module(s): 1
2 2008-1-3 14:35:18 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
3 2008-1-3 14:35:39 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
4 2008-1-3 14:35:49 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
5 2008-1-3 14:37:22 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)

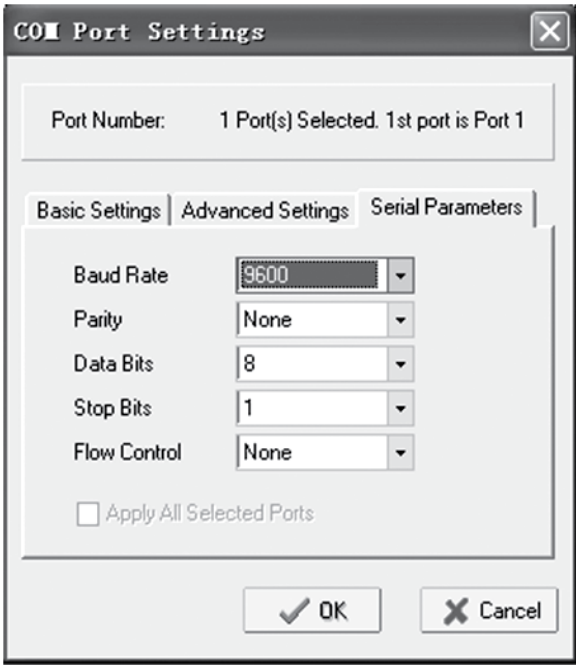
Click **Add Target equipment** button.


Network Enabler Administrator-COM Mapping
File Function COM Mapping View Help
Function
COM Mapping - 1 COM
Network Enabler Admi
Configuration
COM Mapping
Monitor
Port Monitor
IP Address Report
No / Model IP Address Port COM Port Mode Parameter
1 NE-4110S 192.168.0.245 1 COM4 Hi-Performance, FIFO Ena... 9600, None, 8, 1, Non
Message Log - 5 Monitor Log - 0
No Time Description
1 2008-1-3 14:26:33 Found Network Enabler Module(s): 1
2 2008-1-3 14:35:18 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
3 2008-1-3 14:35:39 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
4 2008-1-3 14:35:49 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
5 2008-1-3 14:37:22 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)

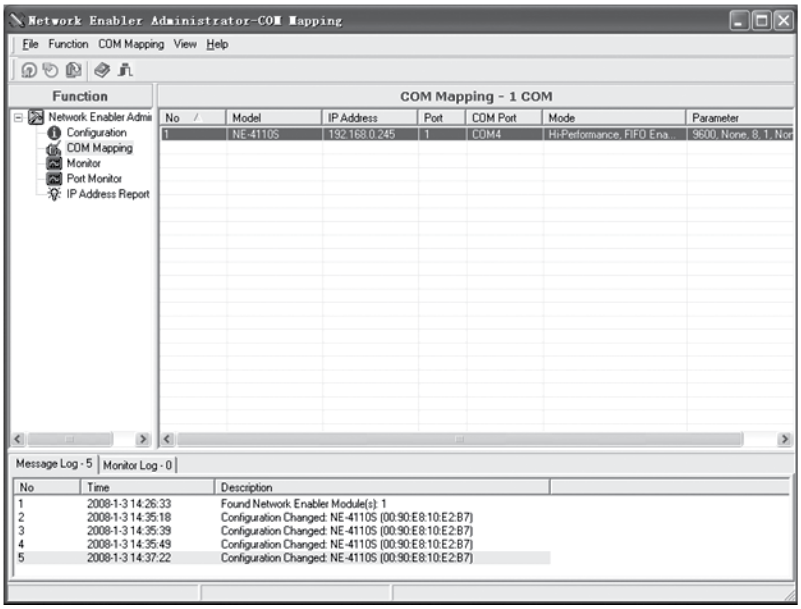
Double-click the searched IP, and select **Advanced Settings** page, set up as the following fig.



Choose **Serial Parameters** page, set up as the following fig.



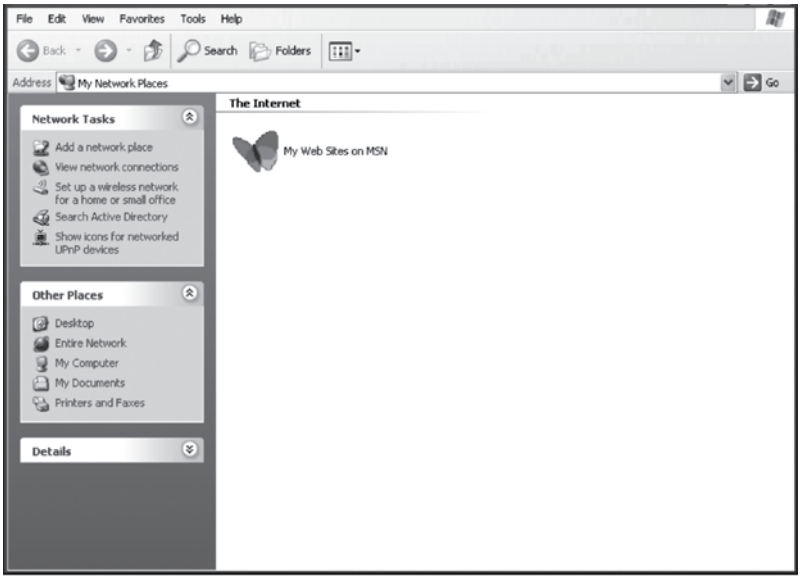
Click **OK** button.


Network Enabler Administrator-COM Mapping
File Function COM Mapping View Help
Function
COM Mapping - 1 COM
Network Enabler Admi
Configuration
COM Mapping
Monitor
Port Monitor
IP Address Report
No / Model IP Address Port COM Port Mode Parameter
1 NE-4110S 192.168.0.245 1 COM4 Hi-Performance, FIFO Ena... 9600, None, 8, 1, Nor
Message Log - 5 Monitor Log - 0
No Time Description
1 2008-1-3 14:26:33 Found Network Enabler Module(s): 1
2 2008-1-3 14:35:18 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
3 2008-1-3 14:35:39 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
4 2008-1-3 14:35:49 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
5 2008-1-3 14:37:22 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)

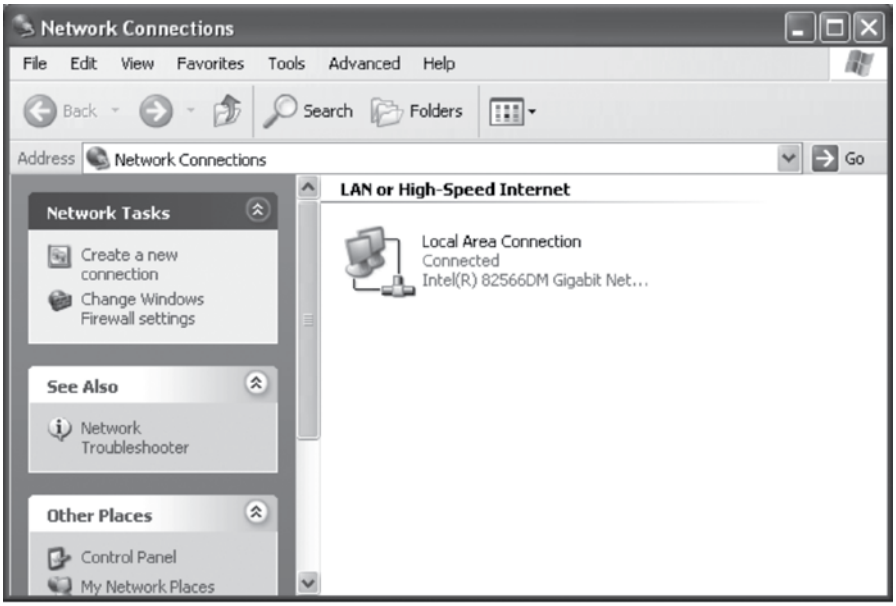
Click **Apply Change button** to confirm the setting, and then click the **Remove Target equipment** , to complete the mapping settings.

4.2.3 PC IP address setup

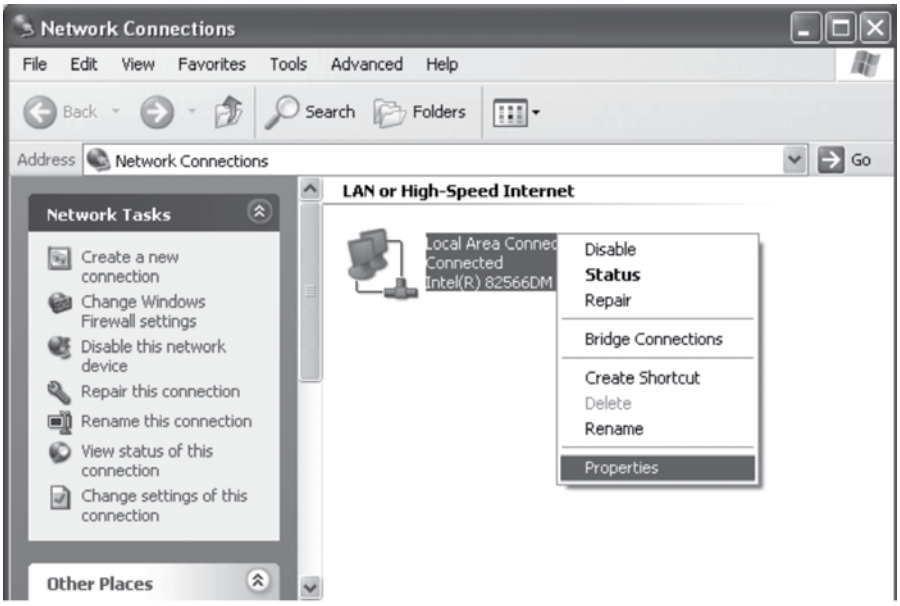
Click "Start", choose "My network places", the following windows will pop up,



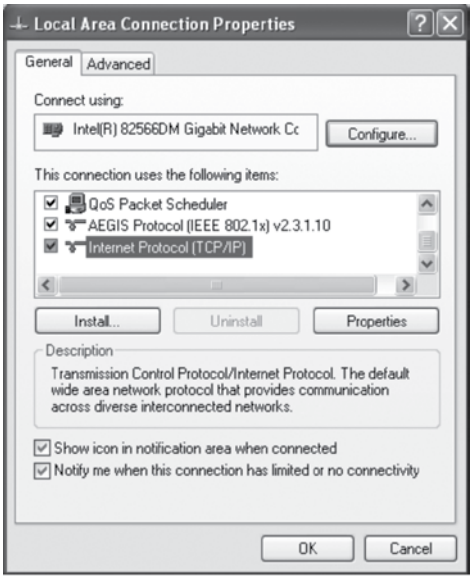
click" View Network Connections" in the left side. A window will pop up as follows



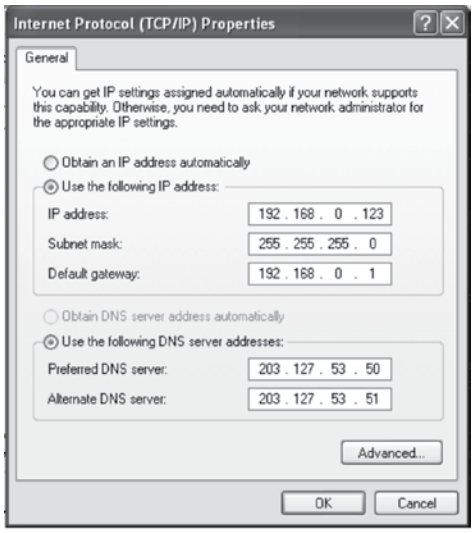
Right Click the icon as below and click " Properties"



Choose Internet Protocol (TCP/IP), and click " Properties"



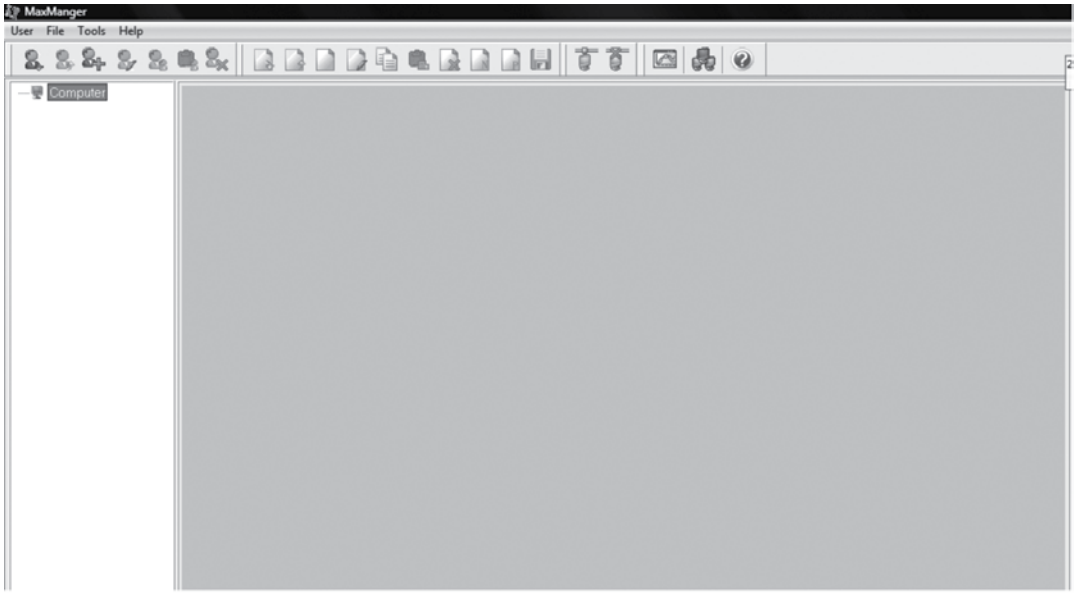
Set IP address, the first 7 digitals 192.168.0 must be as same as the ones we set for **"Network Enabler Administrator"**, and the last 3 digitals must be different from what we set for **"Network Enabler Administrator"**. For example, if we set IP address for thermal cycler as 192.168.0.245 in **chapter 4.2.2.3**, and we can set 192.168.0.145 here for PC.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 123
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 0 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 203 . 127 . 53 . 50
Alternate DNS server: 203 . 127 . 53 . 51
Advanced...
OK
Cancel

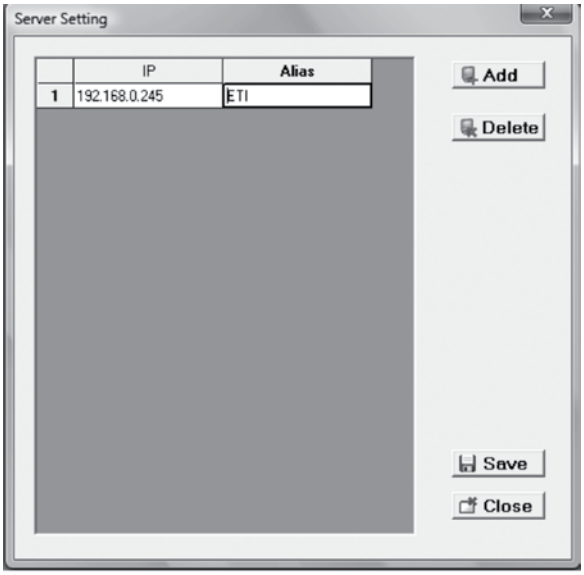
4.2.4. Add thermal cycler IP address in MaxManager PC software.

Keep the Network Enabler Administrator open, double click the MaxManger PC software icon, system will go to the following fig.

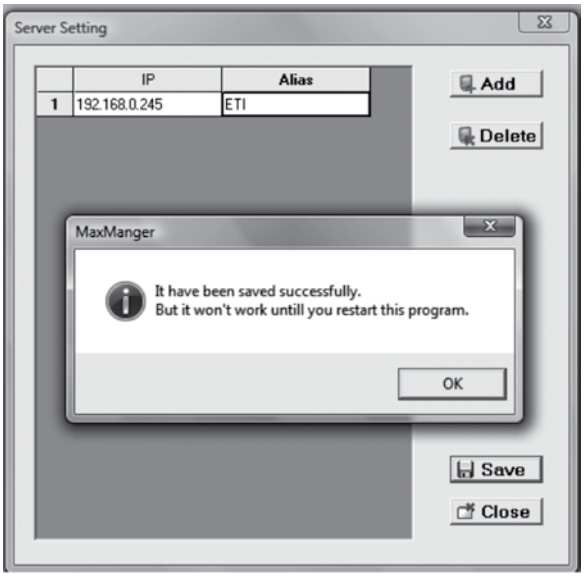
And will enter the main interface automatically as follows,



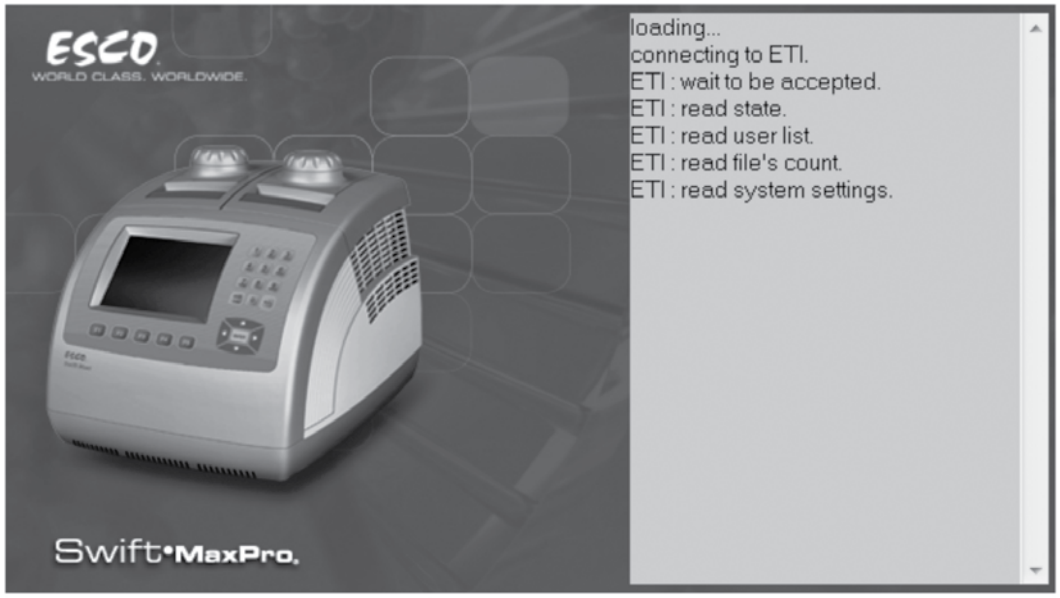
Click **Tools**, and then choose **Server Setting**, Click **Add** and key in the IP address of the thermal cycler which we set in Chapter 4.2.2.3. As the Fig. below.



Click Save after setup



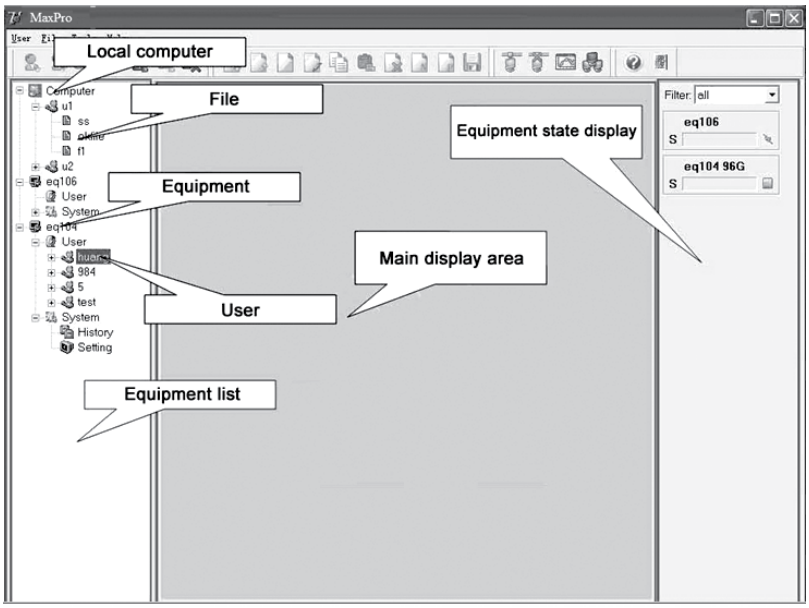
Close the MaxManager PC software completely and open it again. Before enter the main interface, you will see the fig. as below,



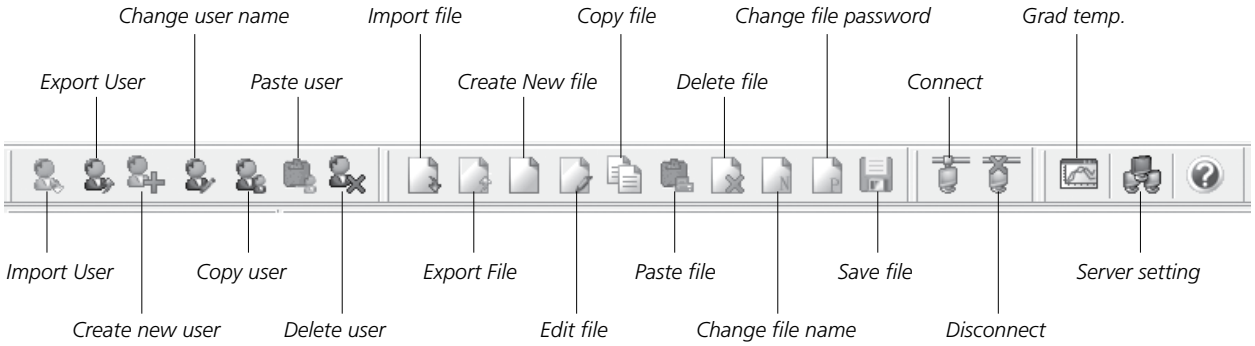
It will enter the main interface automatically. Choose the unit named **ETI**, you will find that the **disconnect** button is bright which means it is connected now and you can discount it.

Note: *Some firewall software may block the port, if the PC cannot connect the thermal cycler successfully, please turn off the firewall of your computer. Go to Start, click Control Panel, there is a Windows Firewall, double click, and then choose "off" for the firewall.*

4.3 MAIN INTERFACE OF MAXPRO PC SOFTWARE



4.3.1. Toolbar



4.3.2. Operations

Run a file

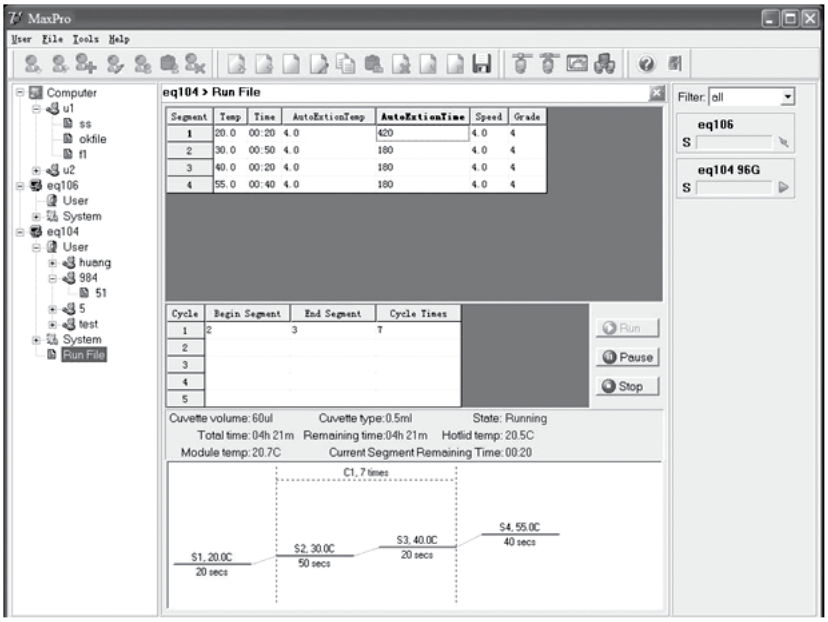
1. Open the file of the equipment or the computer.
2. Click **Run** button.
3. Select Tube type and tube Volume.
4. Click **OK** button to run the file.

Note: *If the file is saved in the computer, choose the equipment before running.*

Check the running file

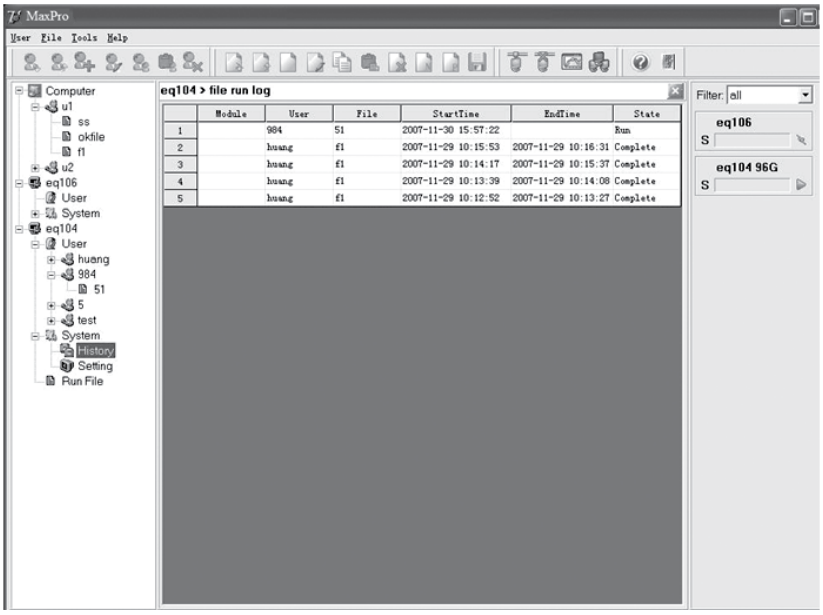
1. If the equipment is running, **Run File (A/B)** will be showed under equipment name.
2. Double-click **Run File (A/B),** display the running file content and equipment running states.

Note: *Click* **Pause / Stop** *button to pause / stop equipment running.*



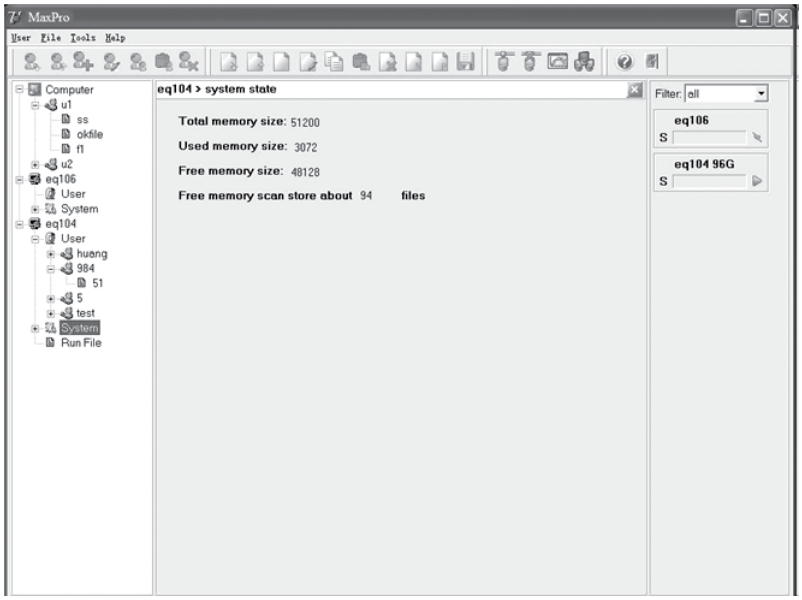
Check history information

Double-click the **History** under the **System** option to show the history information.



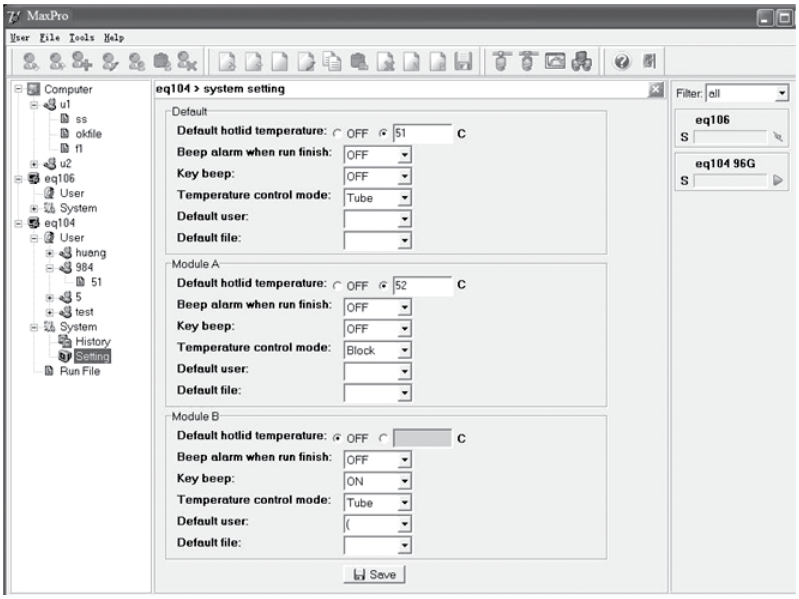
Check the equipment storage state

Double-click the **System** to view equipment storage state.



Set system parameters

Double-click the **Setting** under **System** options, and set system parameters.



4.3.3. User menu

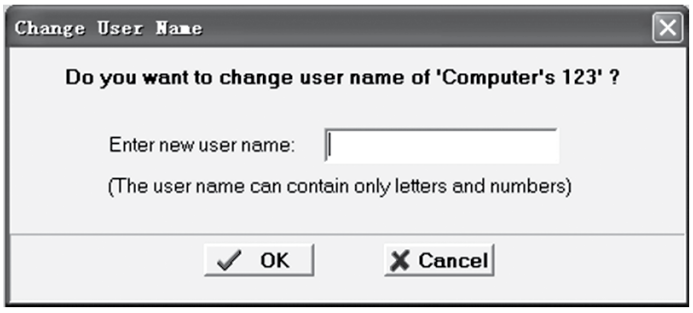
Create a new user

1. Choose **Create New User** under **User** menu, pop-up create user dialog box.
2. Enter your user name, click **OK** button.

Create User
Do you want to create new user in 'Computer' ?
Enter new user name:
(The user name can contain only letters and numbers)
OK
Cancel

Change the user name

1. Choose **Change User Name** under the **User** menu, pop-up the "Change User Name" dialog box.
2. Enter user name, click the OK button.


Change User Name
Do you want to change user name of 'Computer's 123' ?
Enter new user name:
(The user name can contain only letters and numbers)
OK
Cancel

Note: *When the user's file is opened, the user name can not be changed.*

Copy User

1. Choose the user name under equipment.
2. Choose **Copy User** under **User** menu.

Paste user

1. Choose the name of the equipment or any user name under equipment.
2. Choose **Paste User** menu under **User** menu.

Note: *1. If the user name already exists, and its file is opened, the user can not be pasted.*

2. Only can paste between the local computer and equipments.

Delete user

1. Choose the user name need to be deleted.
2. Choose **Delete User** under **User** menu.

Note: *When the user's file is opened, the user can not be deleted.*

Import user

1. Choose local computer.
2. Choose **Import User** under the **User** menu.
3. Choose the import user name, click the **open** button.

Note: *When the user name exists and user's file is opened, the user can not be imported.*

Export user

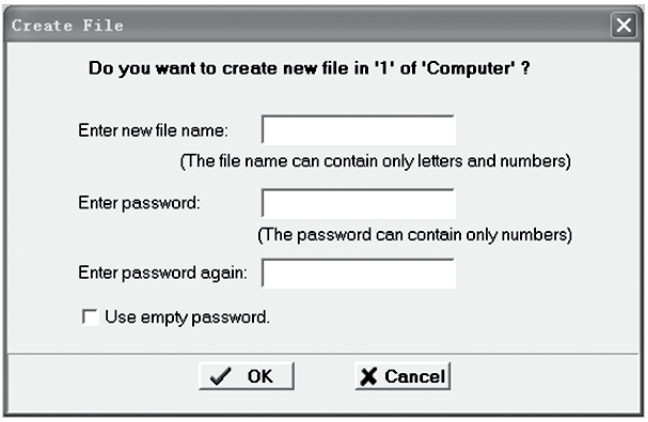
1. Choose the user under local computer.
2. Choose **Export User** under **User** menu.
3. Choose the target path, click **OK** button.

Note: *When the user's file is opened, the user can not be exported.*

4.3.4 File menu

Create new file

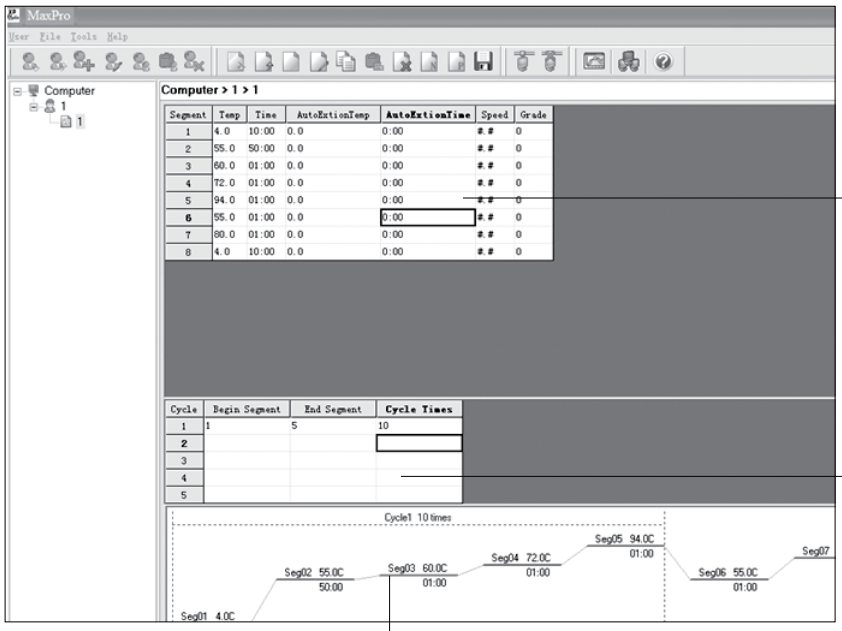
1. Choose the user, whom create new file for.
2. Choose **Create New File** under **File** menu, pop-up the dialog box.
3. Enter the file name and password, click **OK** button.


Create File
Do you want to create new file in '1' of 'Computer' ?
Enter new file name:
(The file name can contain only letters and numbers)
Enter password:
(The password can contain only numbers)
Enter password again:
Use empty password.
OK
Cancel

Edit file

1. Double click the equipment user, double click the file and pop up the file edit window.
2. Edit the file content, click **Save** to save the file.

Note: *If there is a password for the file, need to enter password before edit the file.*



Copy file

1. Choose the file
2. Choose **Copy File** under **File** menu.

Paste File

1. Choose the user under the equipment list.
2. Choose **Paste File** under **File** menu.

Note: *User can paste file between computer and equipments.*

When the file exists and it is opened, can not overwrite the file.

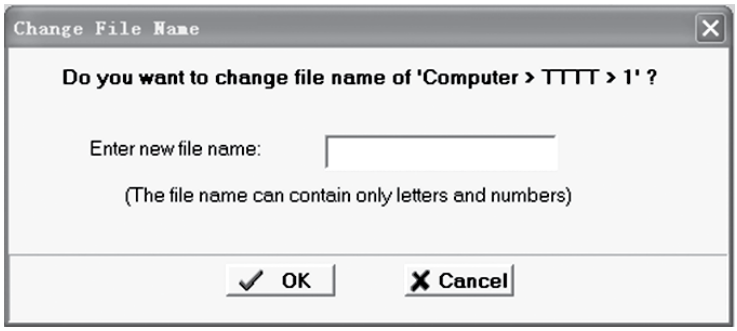
Delete File

1. Choose the file need to be deleted.
2. Choose **Delete File** under the **File** menu

Note: *Opened file can not be deleted.*

Change the file name

1. Choose the file .
2. Choose the **Change File Name** under **File** menu.
3. Enter file name, click **OK** button.


Change File Name
Do you want to change file name of 'Computer > TTTT > 1' ?
Enter new file name:
(The file name can contain only letters and numbers)
OK
Cancel

Note: *Opened file's name can not be changed.*

Change the file password

1. Choose the file.
2. Choose **Change File Password** under **File** menu, pop-up dialog box.
3. Enter the old password, the new password and click **OK** button.

Change File Password
Do you want to change password of 'Computer > TTTT > 1' ?
Enter old password:
Enter new password:
(The password can contain only numbers)
Enter new password again:
Use empty password.
OK
Cancel

Note: *Opened file's password can not be changed.*

Save file

Click **Save File** after modification.

Import file

1. Choose the local computer user.
2. Choose **Export** File under the **File** menu.
3. Choose the file and click **Open** button.

Note: *When the file name exists and it is opened, can not import the file.*

Export File

1. Choose the file need to export.
2. Choose **Export** File under **File** menu.
3. Choose the export target path, click **OK** button.

Note: *Opened file can not be exported.*

4.3.5 Tool menu

Connect

Choose the equipment, click **Connect** under **Tools** menu or button.

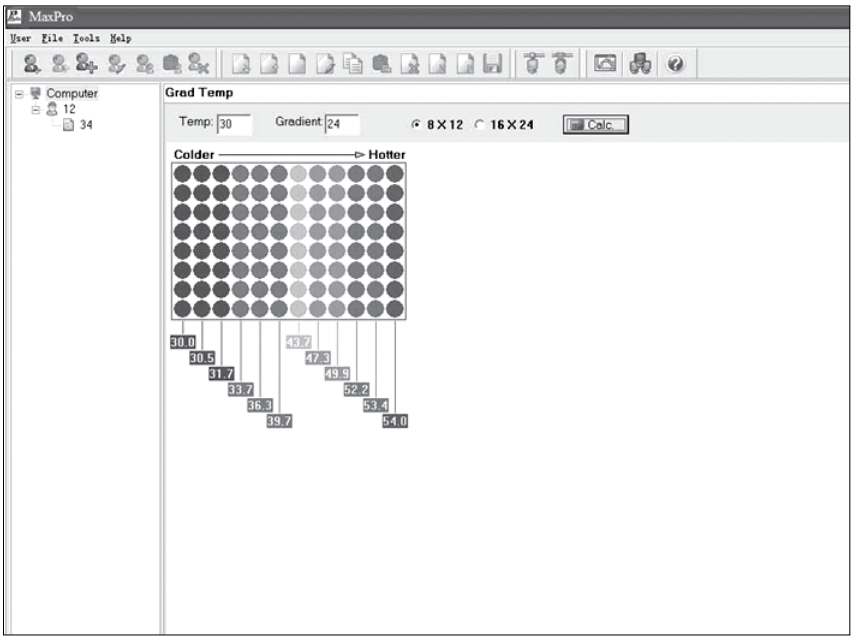
Note: *One equipment can only be connected to one computer at the same time.*

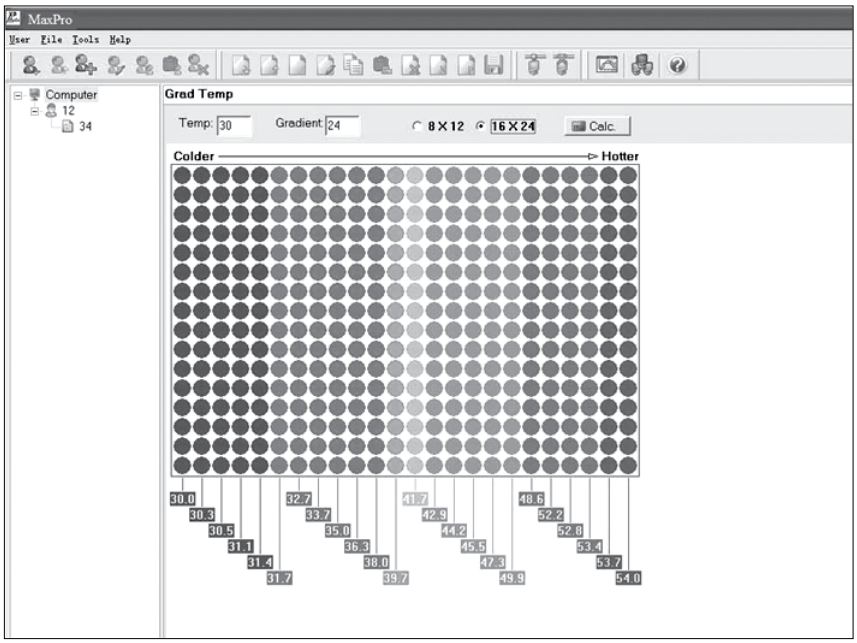
Disconnect

Choose the equipment, click the **Disconnect** under **Tools** menu or button, to disconnect the equipment from the computer.

Grad Temp.

1. Choose Grads Temp.
2. Enter the step temperature and gradient range.
3. Choose the block type 8x12 (96well) or 16x24 (384well).
4. Click Calc. Button to calculate the gradient temperature for each column.



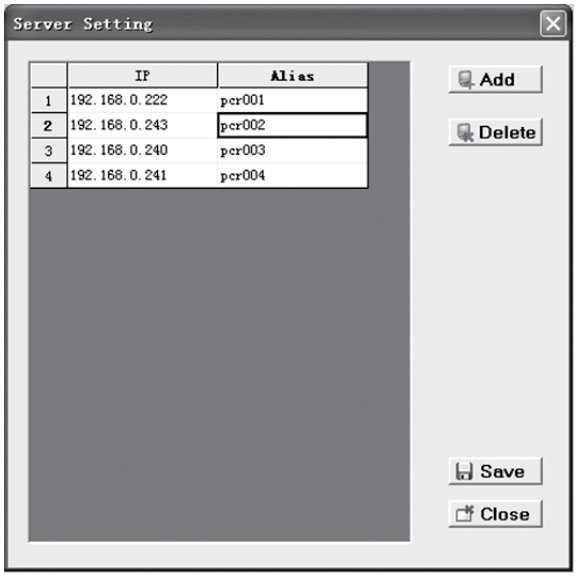


Server Setting- Change the equipment IP and the name

1. Choose **Server Setting** under **Tools** menu, pop-up the setting dialog box.
2. Click the **Add** button to add a row.
3. Click the **Delete** button to delete the current row.
4. Put the IP address and alias, click **Save** button to save the setting.

Note: *1. The setting will be effective until the software restart.*

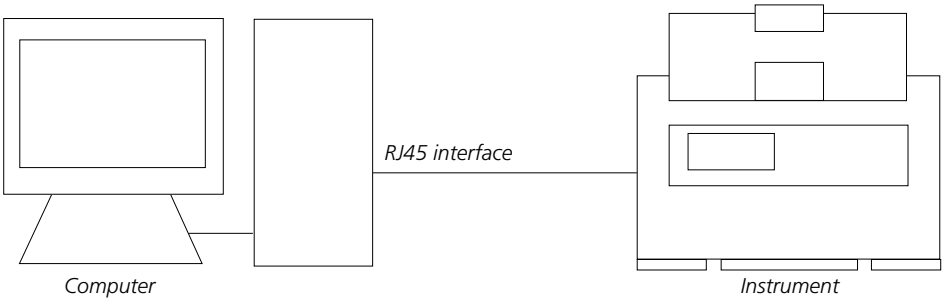
2. IP setting should be corresponding to the equipment.



CHAPTER 5
EQUIPMENT SOFTWARE UPGRADE

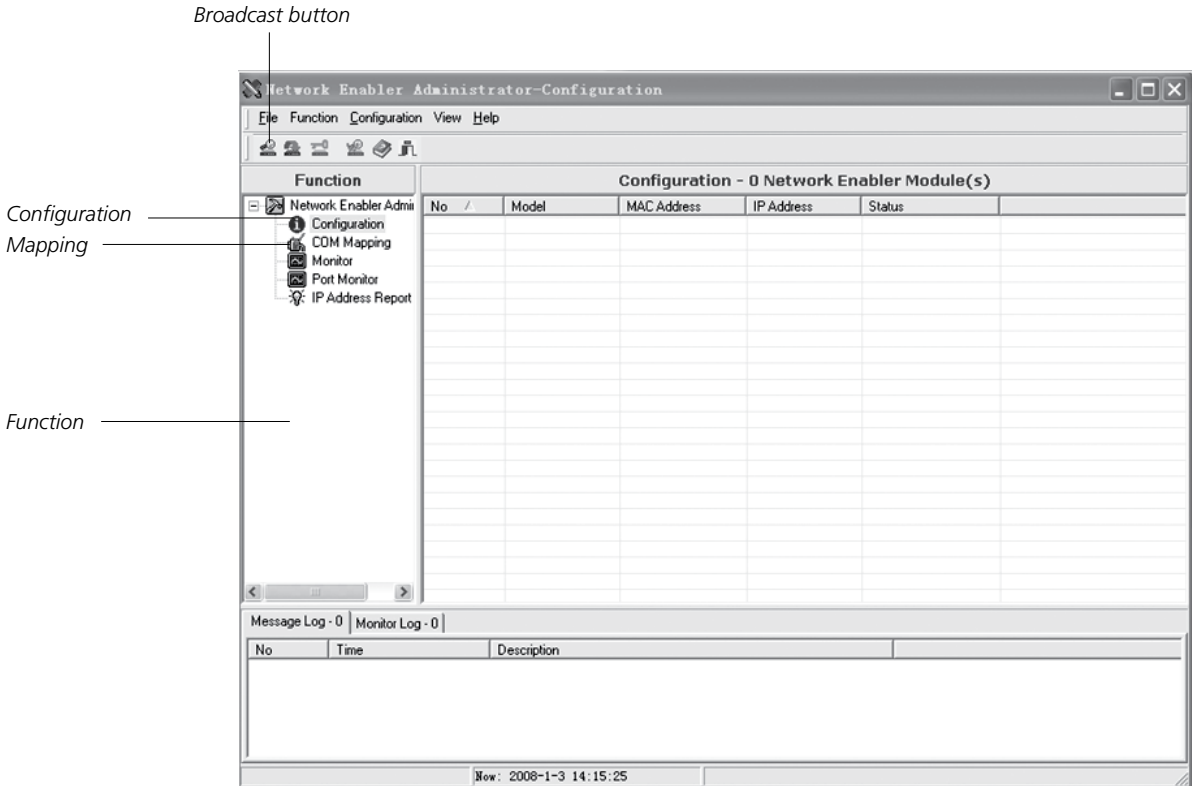
5.1 CONFIGURE YOUR EQUIPMENT

Connect the equipment to computer through RJ45 interface (Cross, Class B Connection)



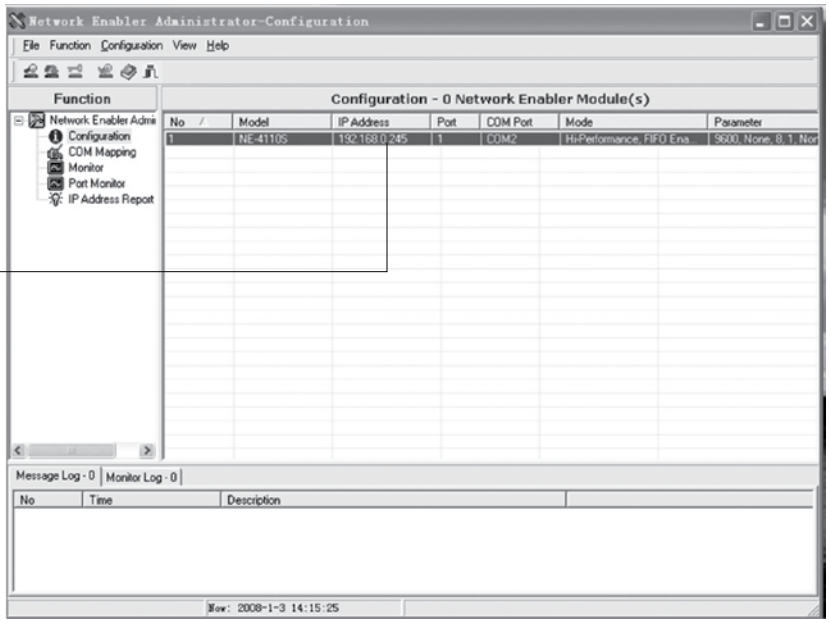
5.2 HOW TO UPGRADE THE SOFTWARE

1. Power on thermal cycler, press F1 and hold for a while, LCD displays “Prepare to upgrade • • •”, system enter software upgrade state.
2. Run **Network Enable Administrator**. Equipment will use virtual equipment mapping for communications during upgrades.

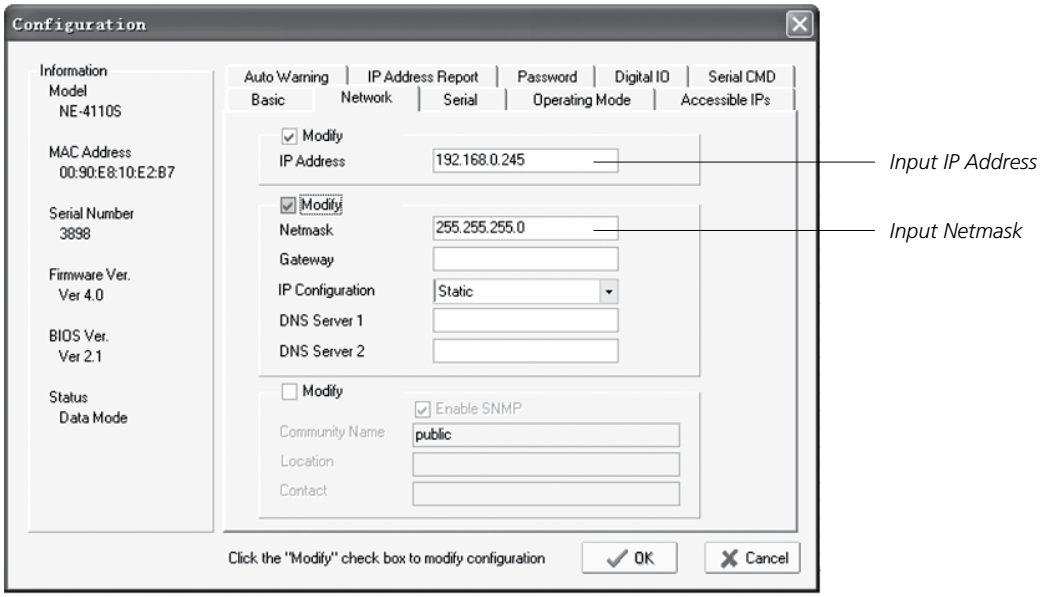


3. Configuration

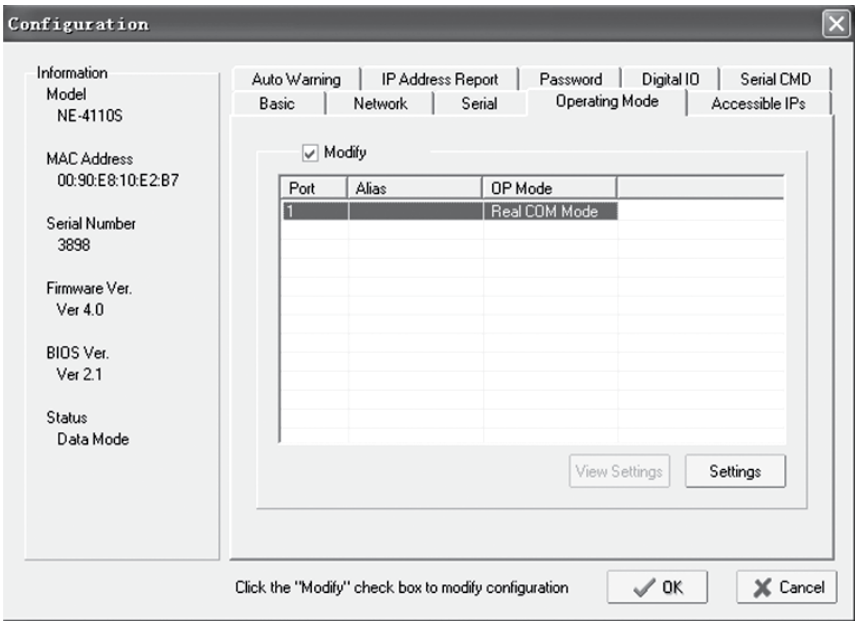
Click the **Broadcast button** , the software will search equipment automatically.



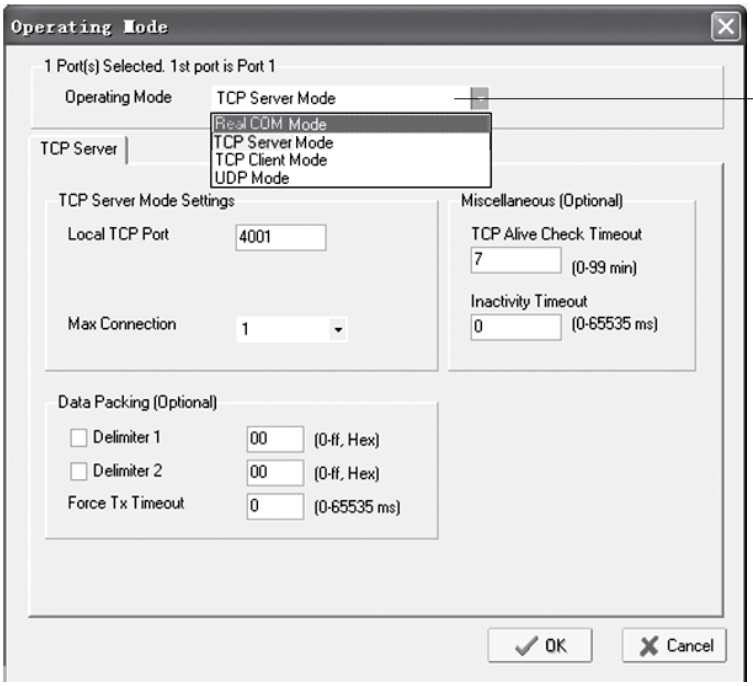
Double-click the searched IP on the column and choose the **Network** option.



Choose **Operating Mode** option, then click **Settings** button.

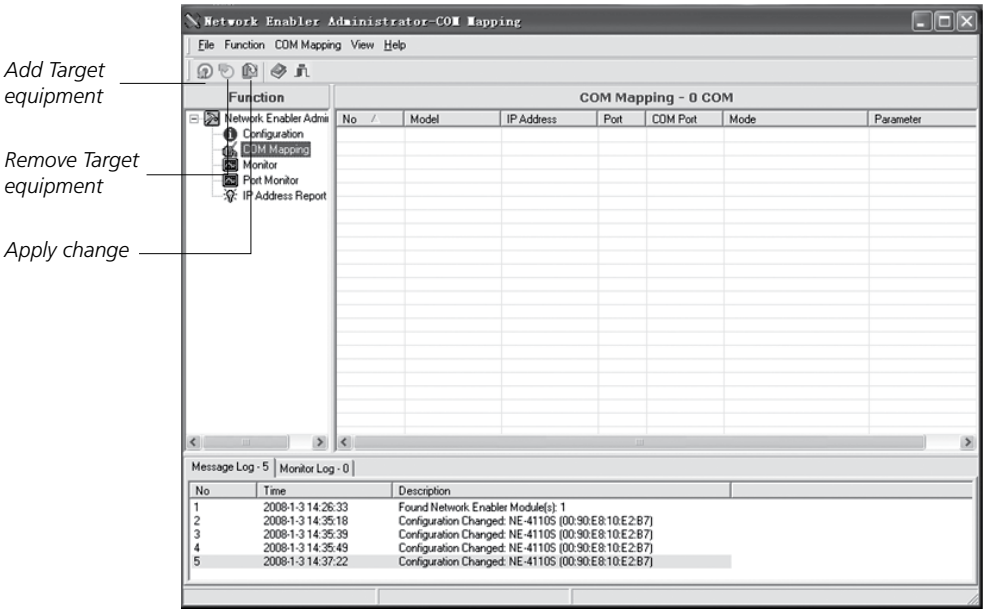


Choose **"Real Com Mode"** for operating Mode.

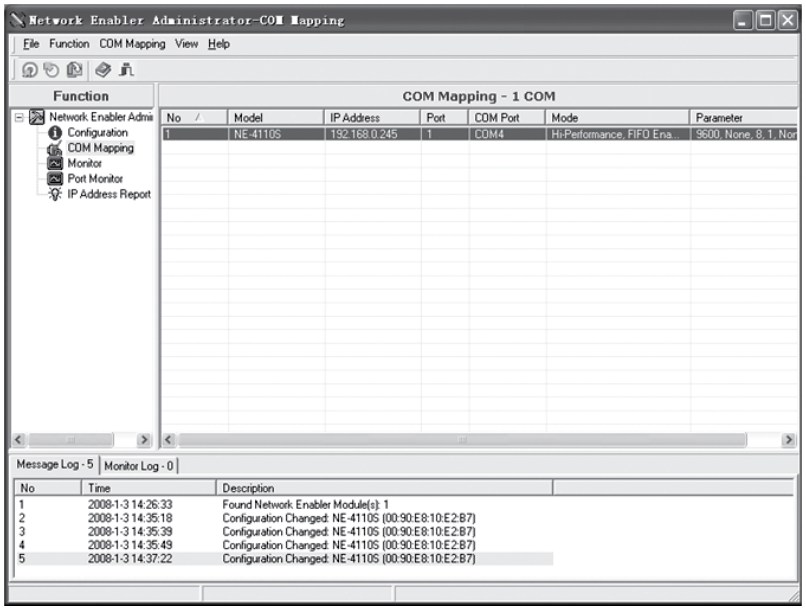


Choose Real Com Mode

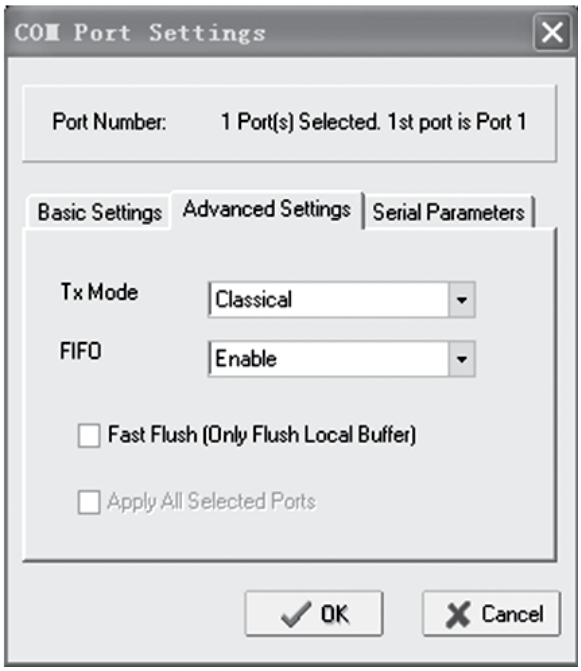
Click **COM MAPPING** from the function list.


Add Target equipment
Remove Target equipment
Apply change
Network Enabler Administrator-COM Mapping
File Function COM Mapping View Help
Function
COM Mapping - 0 COM
Network Enabler Admi
Configuration
COM Mapping
Monitor
Port Monitor
IP Address Report
No / Model IP Address Port COM Port Mode Parameter
Message Log - 5 Monitor Log - 0
No Time Description
1 2008-1-3 14:26:33 Found Network Enabler Module(s): 1
2 2008-1-3 14:35:18 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
3 2008-1-3 14:35:39 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
4 2008-1-3 14:35:49 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
5 2008-1-3 14:37:22 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)

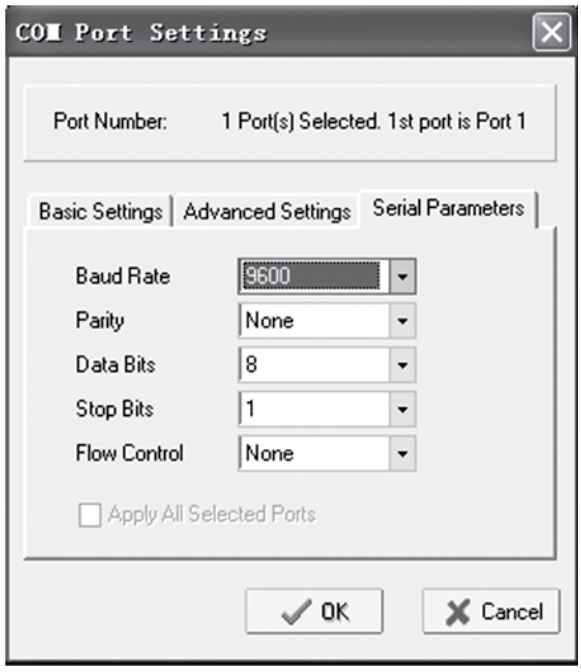
Click **Add Target equipment** button.


Network Enabler Administrator-COM Mapping
File Function COM Mapping View Help
Function
COM Mapping - 1 COM
Network Enabler Admi
Configuration
COM Mapping
Monitor
Port Monitor
IP Address Report
No / Model IP Address Port COM Port Mode Parameter
1 NE-4110S 192.168.0.245 1 COM4 Hi-Performance, FIFO Ena... 9600, None, 8, 1, Nor
Message Log - 5 Monitor Log - 0
No Time Description
1 2008-1-3 14:26:33 Found Network Enabler Module(s): 1
2 2008-1-3 14:35:18 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
3 2008-1-3 14:35:39 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
4 2008-1-3 14:35:49 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)
5 2008-1-3 14:37:22 Configuration Changed: NE-4110S (00:90:E8:10:E2:B7)

Double-click the searched IP, and select **Advanced Settings** page**,** set up as the following fig.



Choose Serial Parameters, set as below:

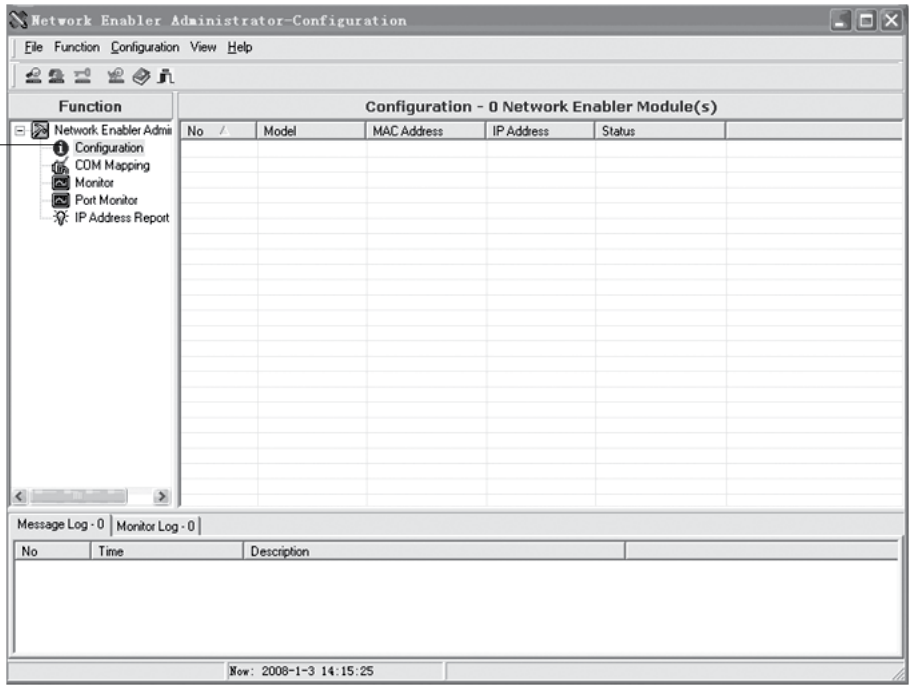


Click **OK** button, apply configuration

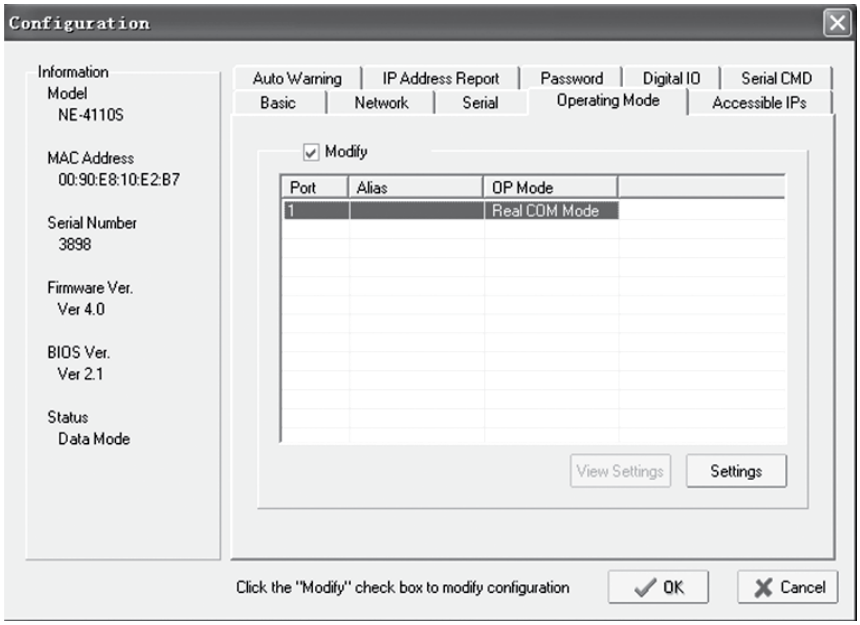
4. Run upgrade.exe.
5. Press **Open**, choose the upgrade file (*.bin) in the computer.
6. Press **Start**, the computer start to upgrade the software of instrument, LCD displays “Upgrade begin”.
7. During software upgrade, LCD displays “Configuring Mode • • •”.
8. When the software upgrade is complete, LCD displays “Upgrade finished • • •”.
9. Equipment software upgrade is finished.
10. Click **Remove Target equipment** to remove the equipment mapping.
11. Restore configuration.

Open **Network Enable Administrator** to choose configuration function.

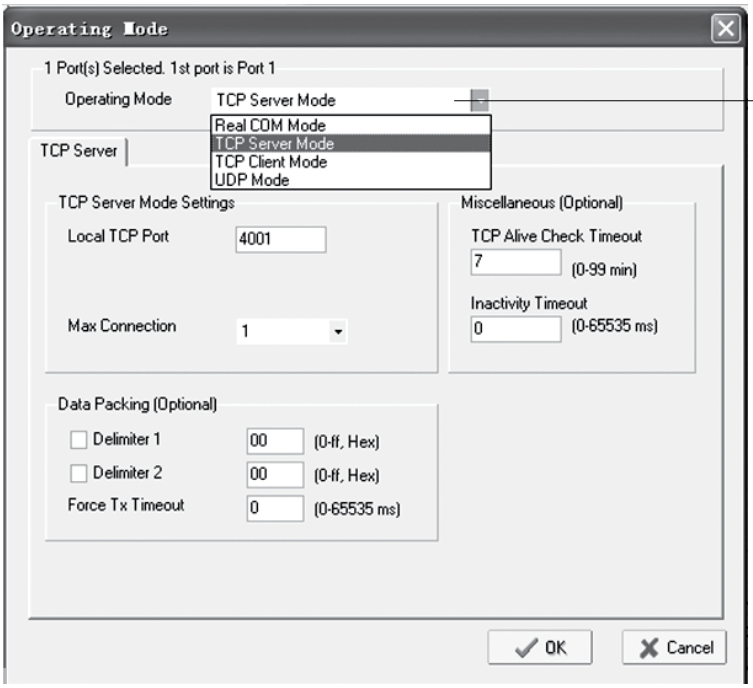
Configuration



Double click the searched IP address, choose **Operation Mode,** and click **setting** button.



Choose “TCP Server Mode” for **Operating Mode.**



Choose TCP Server Mode

Click **OK** button, close Network Enable Administrator.

12. Restart the thermal cycler equipment, enter the system parameter window to reset system parameter.

CHAPTER 6
ROUTINE MAINTENANCE

Maintaining your Thermal Cycler:

Cleaning the Sample Wells:

- Turn off the instrument and let the instrument cool for 10-15 minutes.
- Thoroughly clean wells with a cotton swab soaked in 100% Isopropanol.
- If wells are contaminated, clean thoroughly with a cotton swab soaked in a 70% Ethanol solution.
- Rinse wells with de-ionized or distilled water.
- Wells should be completely dry before using instrument.

Cleaning the Hot lid:

- Turn off the instrument and let the instrument cool for 20-30 minutes.
- Gently wipe the bottom of the hot lid with a cloth soaked in 100% isopropanol.
- If the hot lid is contaminated, wipe the bottom of the lid with a cloth soaked in a 70% Ethanol solution.
- Rinse with de-ionized or distilled water.
- Wait for the lid to dry before returning the lid to its normal position.

If necessary, the body of the Thermal Cycler can be cleaned with a soft, damp cloth.

When cleaning, the instrument should be turned off.
Do not use detergents or corrosive substances to clean the instrument.

Running the Temperature Verification and System Performance Tests:

These are designed to test the following specifications:

Heating Rate; Cooling Rate; Hold Time; Overshoots & Undershoots; Spread; Accuracy;

The test requires the use of the Cyclertest® Driftcon system, which is a temperature monitoring system that measures the above parameters in real time.

An instrument that fails the tests may require service by a qualified Esco engineer.

Please contact your distributor or Esco.

CHAPTER 7
FAILURE ANALYSIS AND TROUBLESHOOTING

No.	Problem	Possible Reason	Actions
1	No display. No beeps when power on	Disconnected power supply	Connect power.
		Faulty fuse	Replace it (250V 8A Φ5×20mm)
		Switch failure	Replace it
		Other	Contact distributor or manufacturer
2	Two beeps after power on. The screen displays "Please insert block" with audible beep.	Loose connection between the block and main unit.	Turn off the power. Remove the block from the main unit. Reinstall the block. Turn on the power..
3	During the run, the screen shows: Please check error, or one of the following options: Temperature sensor disconnect Temperature sensor1 disconnect Temperature sensor2 disconnect Temperature sensor3 disconnect	Damaged sensor or bad connection	Turn off the power. Remove the block from the main unit. Reinstall the block. Turn on the power.
			Contact distributor or manufacturer
4	During the run, the screen shows: Please check error and shows Heat sink sensor disconnect	Damaged sensor or bad connection	Turn off the power. Remove the block from the main unit. Reinstall the block. Turn the power on.
			Contact distributor or manufacturer
5	During the run, the screen shows: Please check error and indicates Hotlid sensor disconnect	Damaged sensor or bad connection	Turn off the power. Remove the block from the main unit. Reinstall. Turn on the power.
			Contact distributor or manufacturer
6	Abrupt change in heating speed or poor temperature control accuracy	Ventilation Blocked	Clear the blockage
		Bad connection	Open the instrument, check that the connectors are connected properly.
		Cooling module failure	Contact distributor or manufacturer
7	Significant change in cooling speed, or unavailable temperature below ambient one	The ambient temperature or humidity is too high, which is beyond the normal working condition of the instrument.	Please regulate the ambient temperature and the humidity.
		Cooling module failure	Contact distributor or manufacturer
		Fan failed or stopped	
8	Heating and cooling terminated	Faulty temperature sensor.	Contact distributor or manufacturer
		Malfunction of all cooling modules	
9	Lid does not heat	Set the hot-lid as "OFF" in the system parameter setting window	Set the hotlid's state as a certain temperature value.
		The control temperature time is set as "--:--" in the file edit interface, which lead to the hotlid closes automatically.	Set the temperature control time in digital.
		Loose connection between connectors	Contact distributor or manufacturer
		Lid heater failure	
		Lid sensor failure	

10	Abnormal characters displayed in the LCD	Bad contact between chip and its socket	Contact distributor or manufacturer
		Chip malfunctioning	
11	Inactive keys	Film panel damaged	Contact distributor or manufacturer
12	Reagent in the reaction tubes evaporated	Failure to set hot-lid temperature, but set the hot-lid as "OFF"	Please refer to "How to set the parameters" to set the temperature of hot-lid.
		The reaction tubes are placed unevenly	Adjust the location of reaction tubes, and place the tubes evenly.
		The lid of reaction tubes are not closed tightly	Please close the lid of tubes tightly before put them into the instrument.
13	The setup of parameters is invalid	Failure to press "Save" button after the setup of parameters	Please Press Save button to save the parameter.

Note: *1.During warranty terms, please contact distributor or manufacturer if there is a need to open the equipment to check a failure listed in the above table.*

2. Each instrument with the same or different brand has their own control temperature features, including cooling & heating rate, stability and fluctuation; Meanwhile, the biological experiment has its own features such as indeterminacy, and easy to be affected by the surroundings, therefore, any PCR program that is achieved on one instrument successfully, maybe cannot be achieved the same successful result. Once you change instruments to do the same experiment, you'd better adjust the PCR running program, in order to get an ideal result.

CHAPTER 8
TECHNICAL DATA

8.1 SPECIFICATIONS

Ambient temperature is 10°C ~30°C, however the device characteristics (maximum ramp rate, temperature accuracy and uniformity) apply only within the temperature range 23°C+/-5°C.

General Specifications, Swift MaxPro Thermal Cycler (SWT-MXP)					
Block Code	**SWT-MXP-BLC1**	**SWT-MXP-BLC2**	**SWT-MXP-BLC3**	**SWT-MXP-BLC4**	**SWT-MXP-BLC5**
Sample Capacity	96 × 0.2ml	48 × 0.2ml + 30 × 0.5ml	384 wells	48 × 0.2ml + 48 × 0.2ml	4 slides
Applied Consumables	0.2ml tubes 96 micro plate 12 x 8 strips 8 x 12 strips	0.2 ml tubes 0.5 ml tubes 4 x 12 strips	384 micro plate	0.2ml tubes 6 x 8 strips	4 slides in situ plate
Temperature Range	4℃ ~ 99℃				
Max. Heating Rate	4.0℃ / sec	2.8℃ / sec	2.8℃ / sec	4.0℃ / sec	1.8℃ / sec
Max. Cooling Rate	4.0℃ / sec	2.8℃ / sec	2.8℃ / sec	4.0℃ / sec	1.8℃ / sec
Temperature Uniformity	±0.3℃				
Temperature Accuracy	±0.2℃				
Max. Gradient	30℃	-	30℃	-	-
Min. Gradient	1℃	-	1℃	-	-
Hot Lid Temp. range	30℃ ~ 110℃				
Temp. Control Mode	Block mode or Tube mode				
Display	5.7" Graphical LCD				
Instrument Memory	100 protocols on board, unlimited with use of USB memory stick and PC (optionally password protected)				
PC Interface	RJ45				
Dimensions (W x D x H)	340mm x 420mm x 280mm (WxLxH)				
Weight (kg)	10				
Power Supply	100-240 V / 50-60 Hz 600W				
Fuse	250V 8A ø5 × 20				
Warranty	3 years on main body, 2 years on blocks				

8.2 PERFORMANCE

Maximum number of cycles: 99

Maximum number of sections: 5

Maximum segments within a cycle: 16

Number of programs: 99

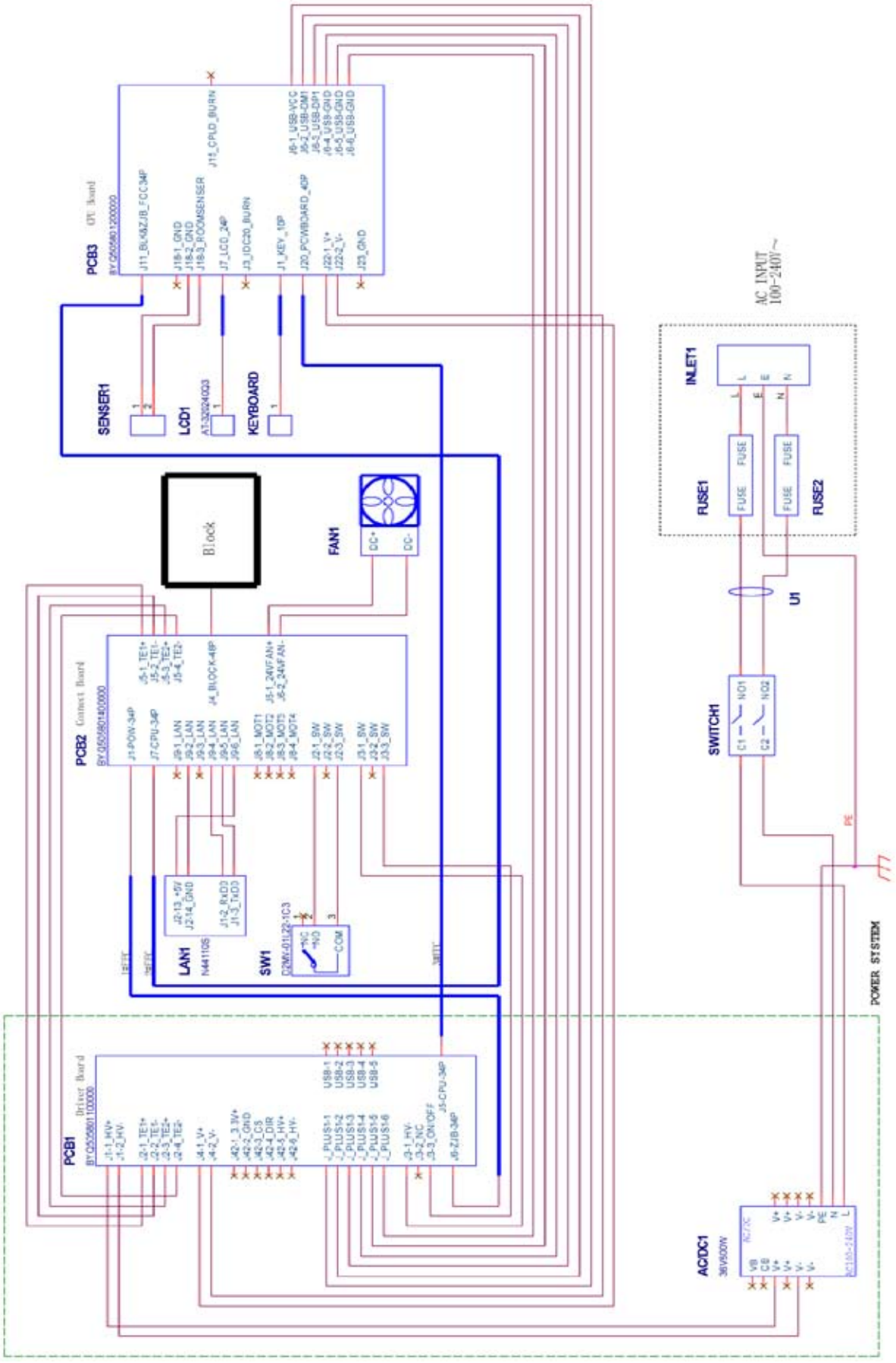
Noise: 59dBA

Background Noise: below 40dBA

8.3 EQUIPMENT SOFTWARE FUNCTION

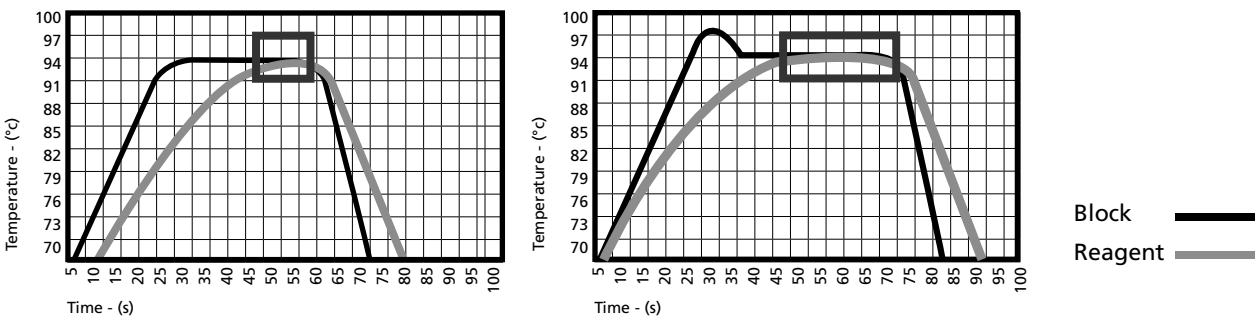
- File editing and saving
- File modifying and deleting
- Adjustment of the heating/cooling rate
- Temperature & time increments/decrements during runs
- Data display at each phase of the run

- Program pause function
- Program stop
- Auto-restart in case of power failure and alarm
- Software upgrades via RJ45 interface
- Audible alarm
- Total program run time and remaining program run time
- Date and time (year, month, day, hour, minute, second) display and calibration
- Failure protection and alarming.


PCB3
SENSER1
LCD1
KEYBOARD
Block
FAN1
PCB2
LAN1
SW1
INLET1
FUSE1
FUSE2
U1
SWITCH1
PCB1
ACDC1
POWER SYSTEM
AC INPUT
100-240V~

APPENDIX 2
PARAMETER AND MEANING

Item	Parameter	Meaning	Range	Note
1	Temp (C)	Temp. Control point	4.0~99.0	
2	Time	Time of Temp. Control (mm:ss)	--:-- (set the value before ": " through "+/-" key.)	The time of Temp. control is infinity, meanwhile, the hotlid closed.
			00:00~59:59	
3	Ramp (C/S)	Ramping Rate (C /Second)	0.1 ~4.0 C	
			#.#	Maximum Ramping Rate
4	+Temp	Temp. Gain of Every Cycler	0.0~9.9	
5	+Time	Time Gain of Every Cycler (mm:ss)	0:00~9:59	
6	Cycle1	Section Numbers	1~5	Cycle1: ×00 From 00 to 00
	×00	Cycler Numbers from beginning to the end	1~99	
	From 00	The start segment of the section	X (and existed segment no.)	
	to 00	The end segment of the section.	≤X+15	
7	Grad.	Gradient Temp. range (C)	0 ~30	
8	Date	Date (YY-MM-DD)	00 (~99) -01 (~12) -01 (~31)	Year-Month-Date
9	Time	Time (HH:MM:SS)	00:00:00~23:59:59	Hour: Minute: Second
10	Default File	The default user file	Max. length is 11 characters.	
11	Default User	The default user name	Max. length is 11 characters.	
12	Control Mode	Control Mode	Block	In this mode, the time for reagent's temperature to reach the set temperature is less than setting time (see Fig. 1).
			Tube	In this mode, the reagent's temperature can reach the set temperature very rapidly (see Fig. 2).
13	Sample Volume	Sample Volume (µl)	10~200	
14	Holid	State of Hot Lid: Off	Off	
		State of Hotlid: Open (C)	30~110	
15	Key Sound	Key Sound (Yes or No)	Yes/No	Humming
16	Run End Sound	Run End Sound (Yes or No)	Yes/No	Humming continuously



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